q626.8
T32p
v.4

KINGDOM OF SIAM,

MINISTRY OF LANDS AND AGRICULTURE,

ROYAL IRRIGATION DEPARTMENT.

PROJECT ESTIMATE

FOR

WORKS OF IRRIGATION, DRAINAGE AND NAVIGATION

TO

DEVELOP THE PLAIN OF CENTRAL SIAM.

Vol. IV

PLANS AND DIAGRAMS.

BANGKOK

PRINTED AT THE "BANGKOK DAILY MAIL."

1915.

THE UNIVERSITY
OF ILLINOIS
LIBRARY
q626.8
T32p
v.4

Digitized by the Internet Archive
in 2016

https://archive.org/details/projectestimatef04thai

KINGDOM OF SIAM,

MINISTRY OF LANDS AND AGRICULTURE,

ROYAL IRRIGATION DEPARTMENT.

PROJECT ESTIMATE

FOR

WORKS OF IRRIGATION, DRAINAGE AND NAVIGATION

TO

DEVELOP THE PLAIN OF CENTRAL SIAM.

Vol. IV

PLANS AND DIAGRAMS.

BANGKOK

PRINTED AT THE "BANGKOK DAILY MAIL."

1915.

T32

INDEX VOL. IV

NOTE:—The more important Plans and Diagrams referred to in the letterpress of the report are included in this Volume. Other Plans are in the files of the Office of the Royal Irrigation Department.

Sheet No. 1. Map of Kingdom of Siam shewing Catchment Areas } In Pocket
„ „ 2. Index Map }

„ „ 3. Cross Section of Mênàm Chào Bhrayā Wad Dhāhād and velocity Curves

„ „ 4. Mênàm Chào Bhrayā Annual Hydrograph and Rainfall

Diagram 1905-1096

„ „ 5. „ „ „ „ „ „ „ fall „ 1907-1908

„ „ 6. „ „ „ „ „ „ „ „ „ 1909-1910

„ „ 7. „ „ „ „ „ „ „ „ „ 1911-1912

„ „ 8. „ „ „ „ „ „ „ „ „ 1913 }
„ „ „ Mean Hydrograph 1905-1913 inclusive }

„ „ 9. Mênàm Mêklohng Annual Hydrograph 1905-1906

„ „ 10. „ „ „ „ „ 1907-1908

„ „ 11. „ „ „ „ „ 1909-1910

„ „ 12. „ „ „ „ „ 1911-1912

„ „ 13. „ „ „ „ „ 1913- }
„ „ „ Mean Hydrograph 1905-1913 Inêlusive }

„ „ 14. Longitudinal Section showing water surface of Mênàm Chào Bhrayā

„ „ 15. „ Sections of Suhharn Canal Greater and Lesser

„ „ 16. „ „ West Branch Subharn Canal and Glōhng Lobburī

„ „ 17. „ „ of Mênàm Nòi Canal Greater and Lesser

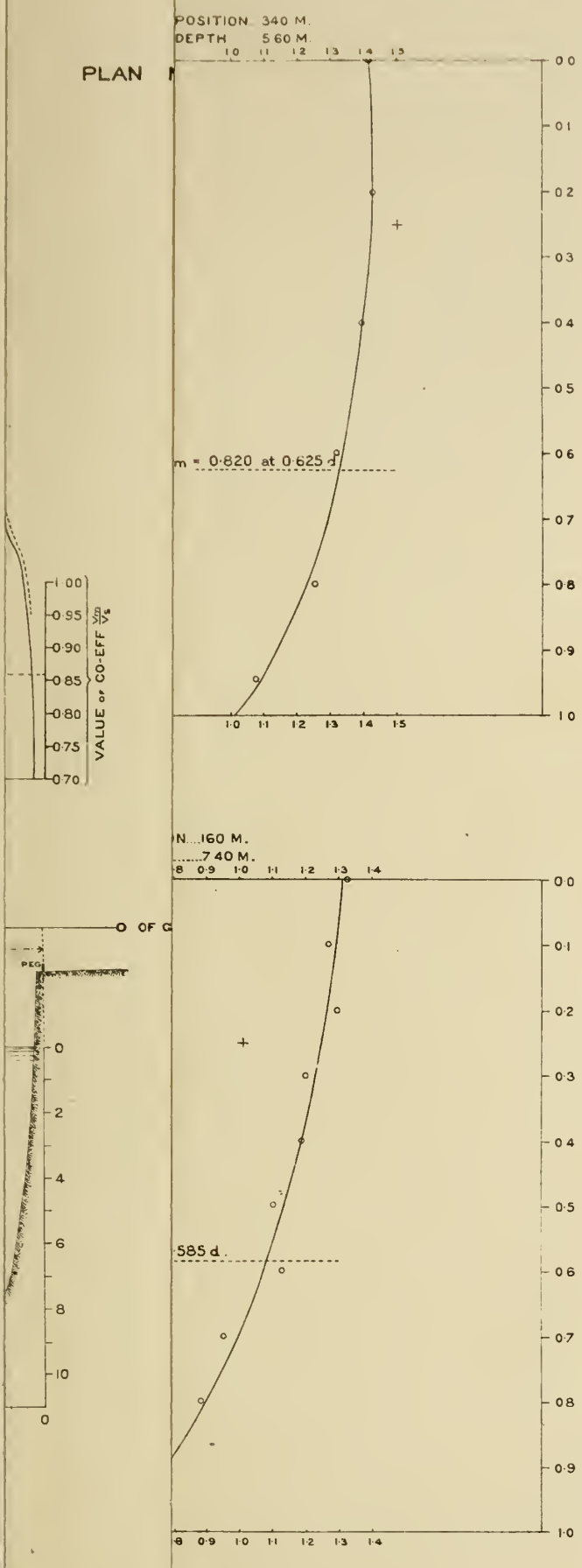
„ „ 18. „ „ Subharn Canal and Mênàm Nòi Canal Barrage Scheme

„ „ 19. „ „ „ and Mênàm Nòi Distributaries

„ „ 20. „ „ of Prasak Canal.

966105

PLAN Nº 8.



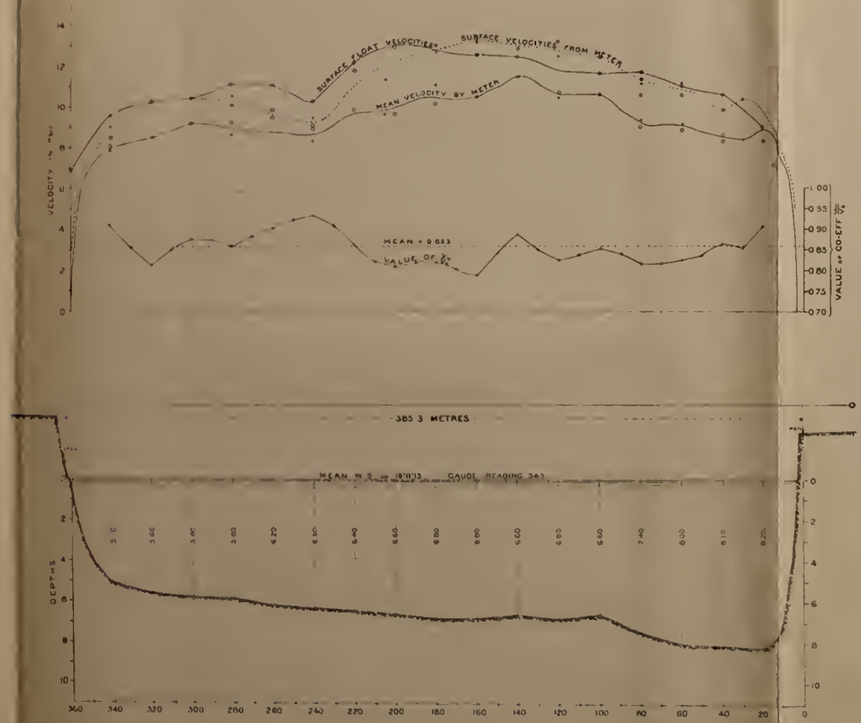
ตัวอย่างการแสดงผลการทดลอง
ปี พ.ศ. ๒๕๕๔

SHEET Nº 3

CROSS - SECTION OF MÉNAM CHAO BHRAYÁ
AT WAD DHÁHÁD
NOV 1913

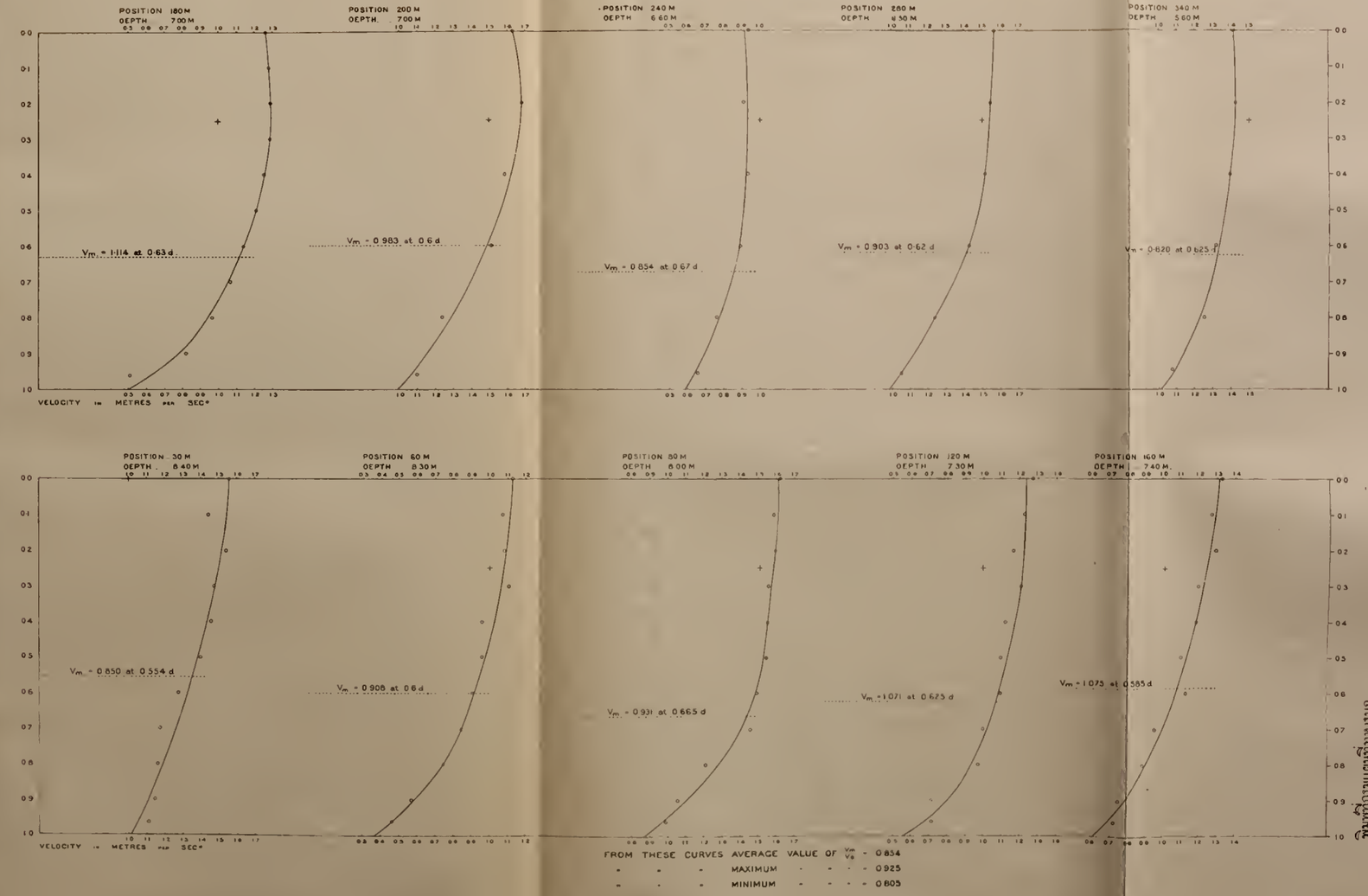
ALSO VELOCITY OBSERVATIONS BY A A STODDARD

PLAN Nº 7



VELOCITY CURVES OBSERVED AT Wº DHÁHÁD IN NOVR 1913.

PLAN Nº 8.

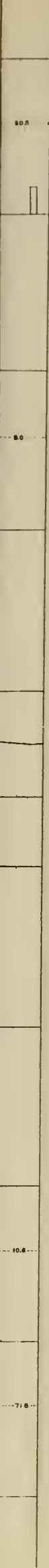

POSITION 180 M
DEPTH 7.00 M
Vm = 1.114 at 0.63 d
POSITION 200 M
DEPTH 7.00 M
Vm = 0.983 at 0.6 d
POSITION 240 M
DEPTH 6.60 M
Vm = 0.854 at 0.67 d
POSITION 280 M
DEPTH 6.50 M
Vm = 0.903 at 0.62 d
POSITION 340 M
DEPTH 5.60 M
Vm = 0.820 at 0.625 d
VELOCITY IN METRES PER SECº
POSITION 30 M
DEPTH 8.40 M
Vm = 0.850 at 0.554 d
POSITION 60 M
DEPTH 8.30 M
Vm = 0.908 at 0.6 d
POSITION 80 M
DEPTH 8.00 M
Vm = 0.931 at 0.665 d
POSITION 120 M
DEPTH 7.30 M
Vm = 1.071 at 0.625 d
POSITION 160 M
DEPTH 7.40 M
Vm = 1.075 at 0.585 d
VELOCITY IN METRES PER SECº

FROM THESE CURVES AVERAGE VALUE OF $\frac{V_m}{V_s}$ = 0.834

" " " MAXIMUM " " " = 0.925

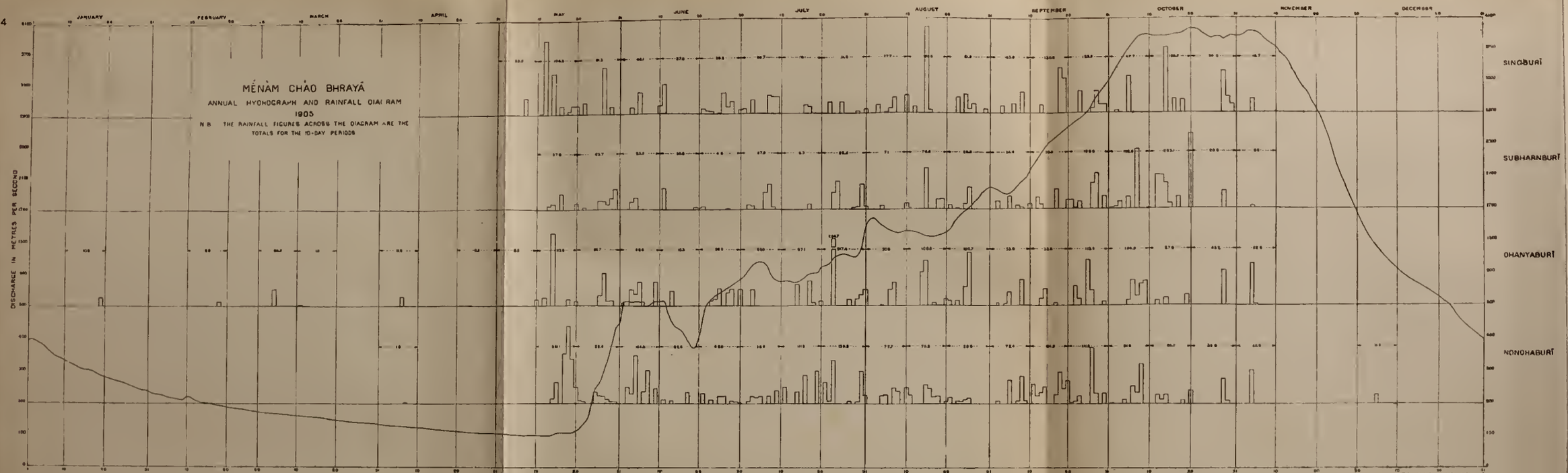
" " " MINIMUM " " " = 0.805

สำนักวิทยบริการฯ จุฬาลงกรณ์มหาวิทยาลัย
๒๕๕๑

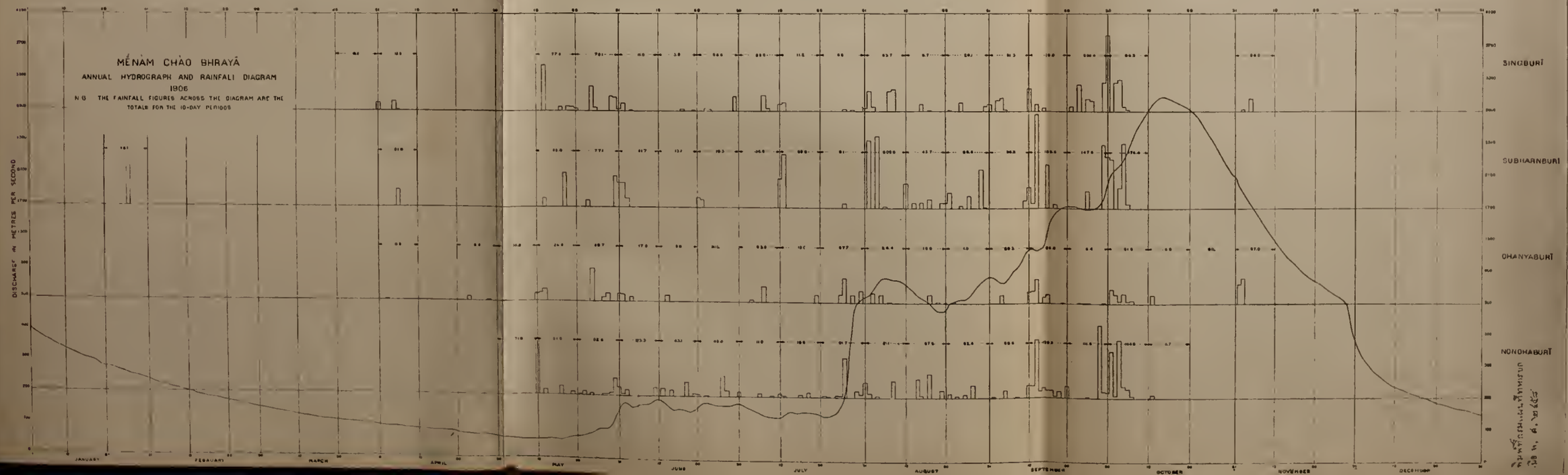

10.5
5.0
10.6
7.6

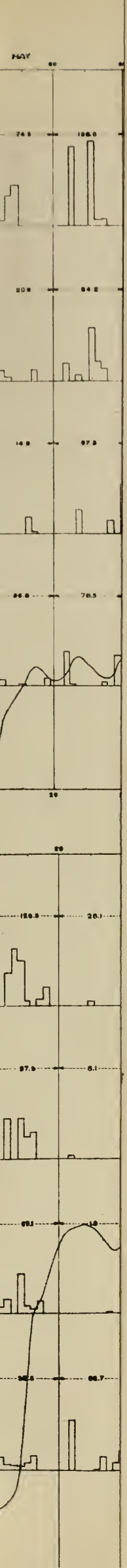
PLAN Nº 11

SHEET Nº 4



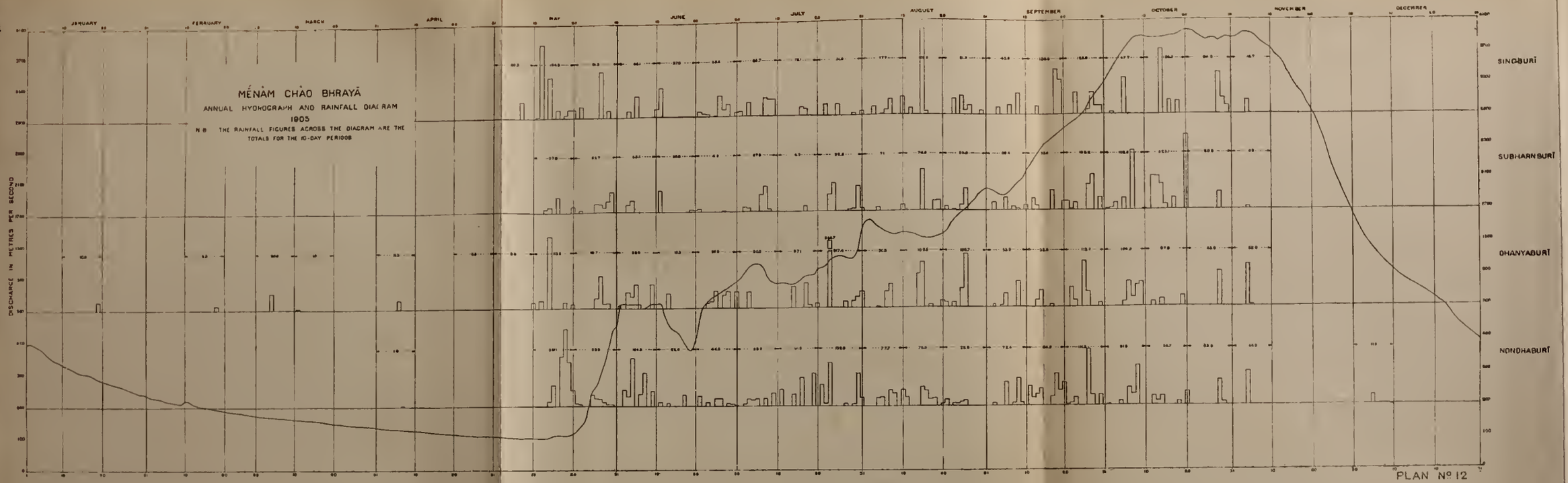
PLAN Nº 12



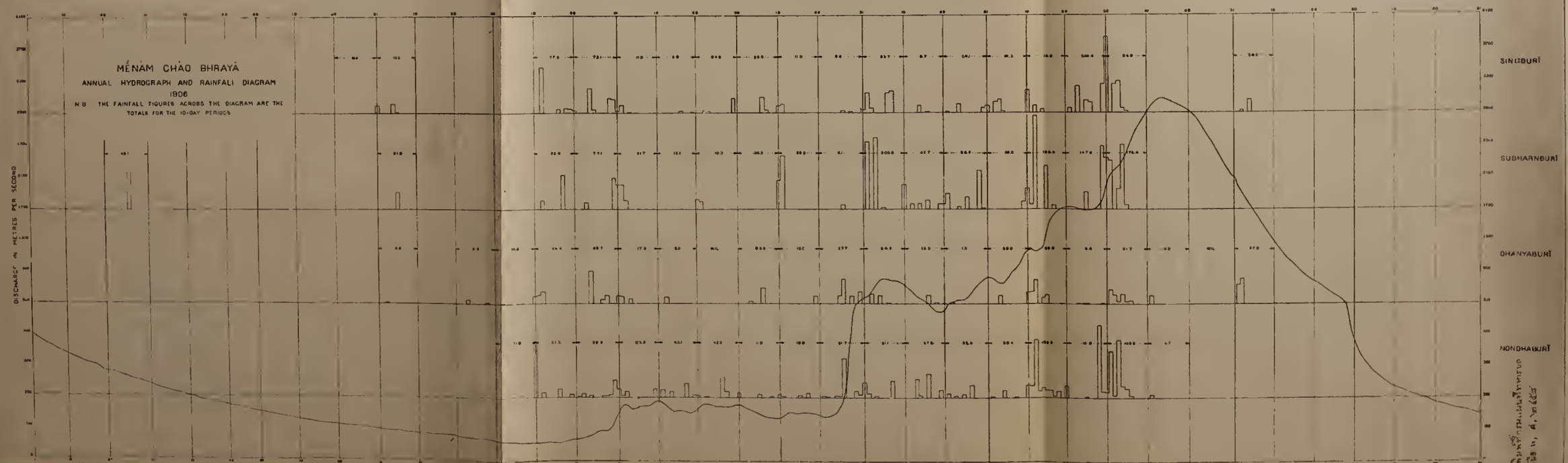

MAY
74.5
188.0
20.8
84.2
14.8
97.3
34.8
78.5
20
20
120.3
26.1
97.5
8.1
69.1
1.0
38.5
66.7

SHEET No 4

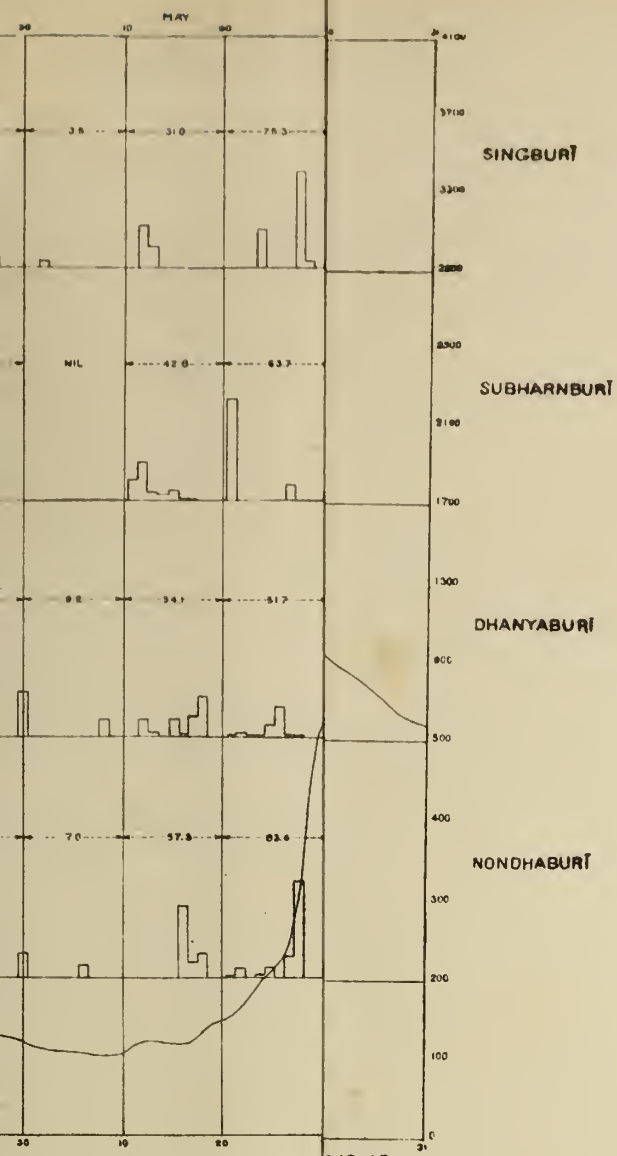
PLAN No 11



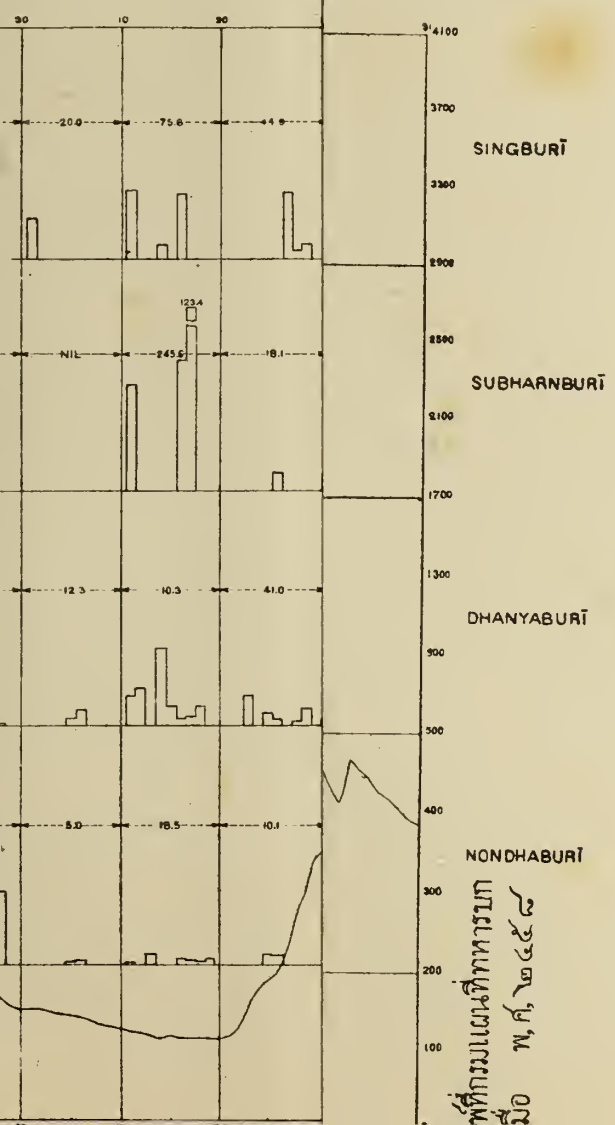
PLAN No 12



Nº 15



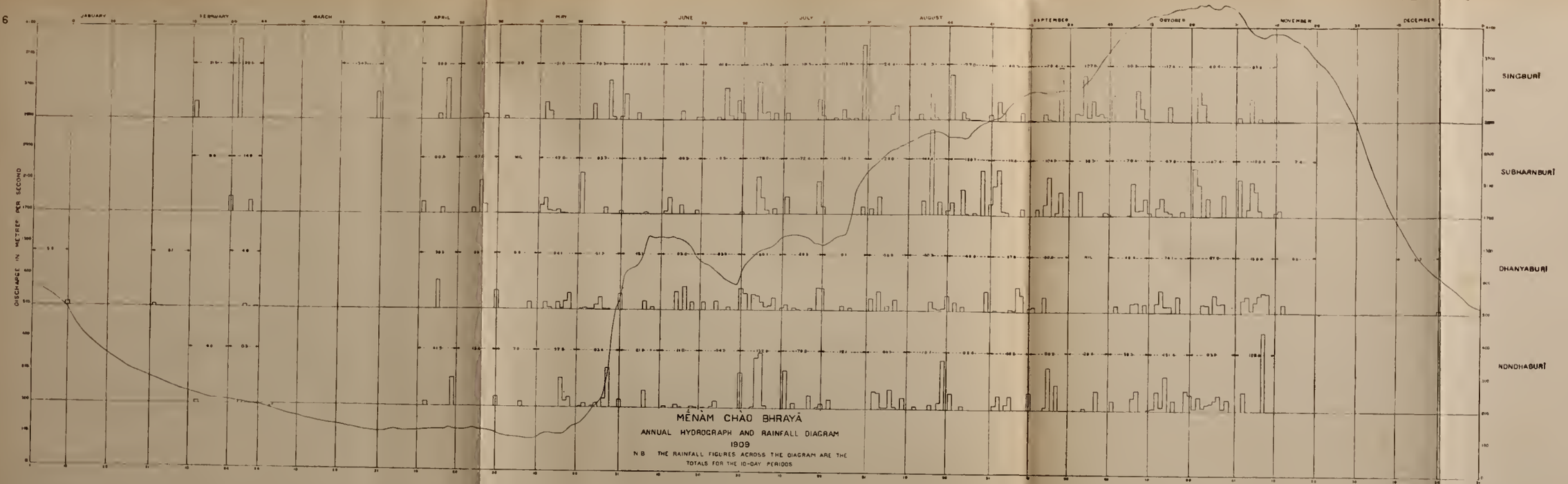
Nº 16



ที่การชลประทาน
พ.ศ. ๒๕๔๕

SHEET Nº 6

PLAN Nº 15



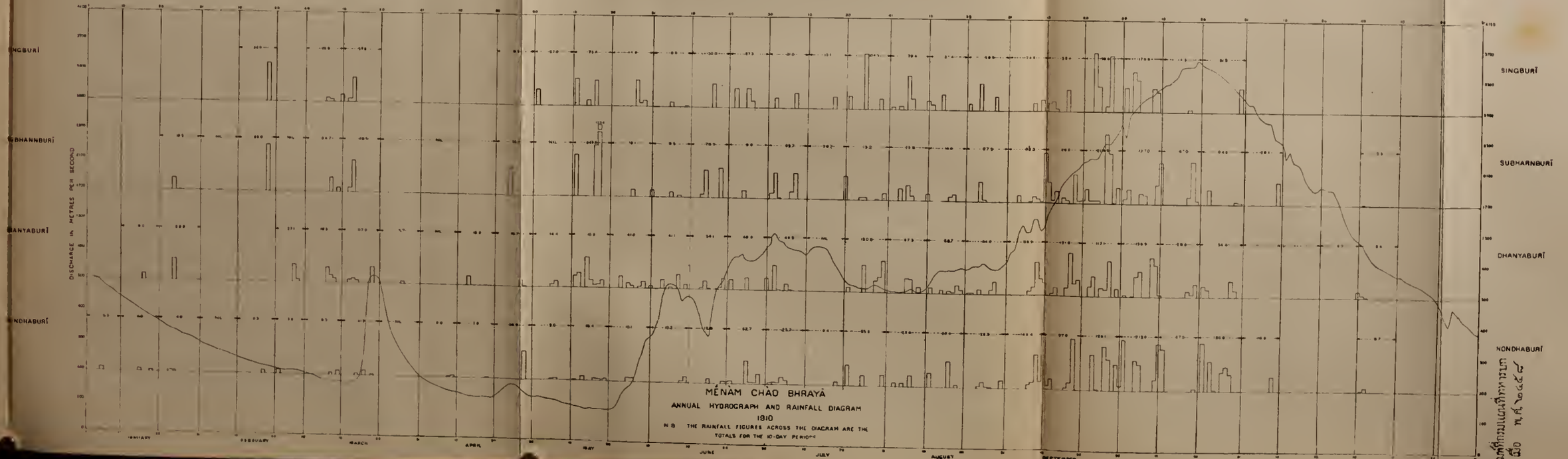
MÉNAM CHAO BHRAYA

ANNUAL HYDROGRAPH AND RAINFALL DIAGRAM

1909

N.B THE RAINFALL FIGURES ACROSS THE DIAGRAM ARE THE TOTALS FOR THE 10-DAY PERIODS

PLAN Nº 16

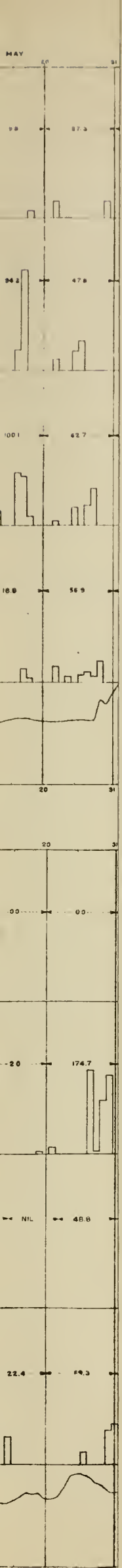


MÉNAM CHAO BHRAYA

ANNUAL HYDROGRAPH AND RAINFALL DIAGRAM

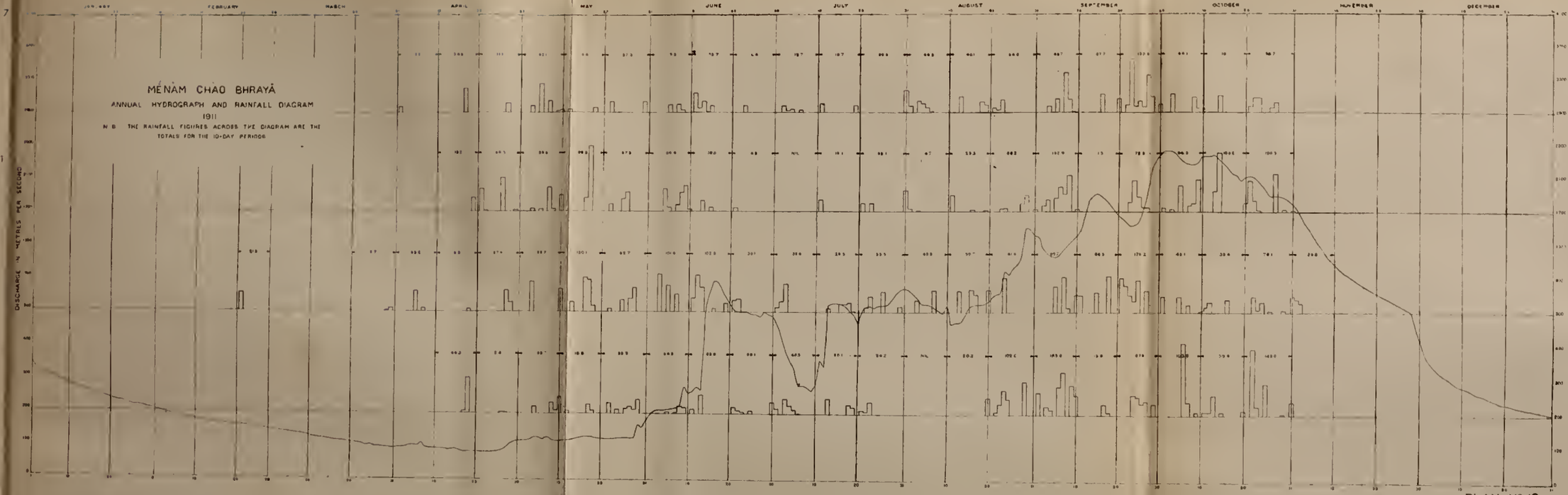
1910

N.B THE RAINFALL FIGURES ACROSS THE DIAGRAM ARE THE TOTALS FOR THE 10-DAY PERIODS

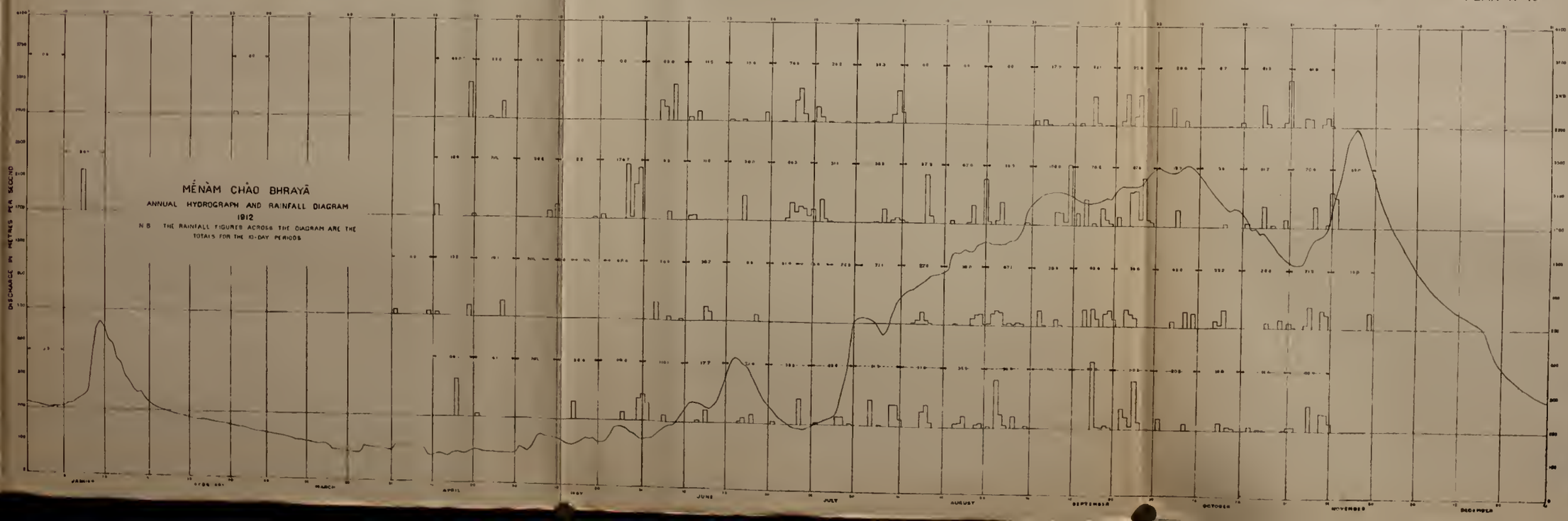

MAY
20
31
87.3
47.8
62.7
56.9
20
31
20
31
0.0
0.0
2.0
174.7
NIL
48.8
22.4
59.3

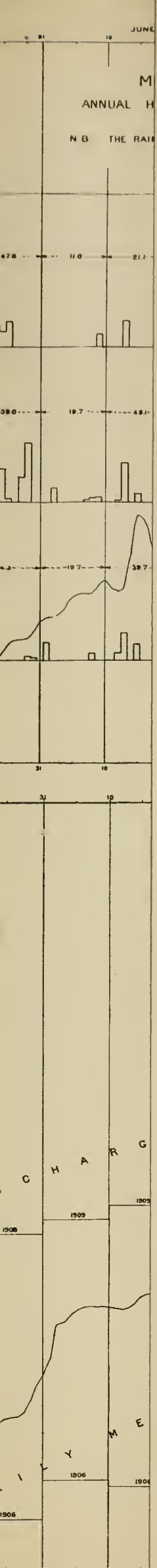
PLAN Nº 17

SHEET Nº 7



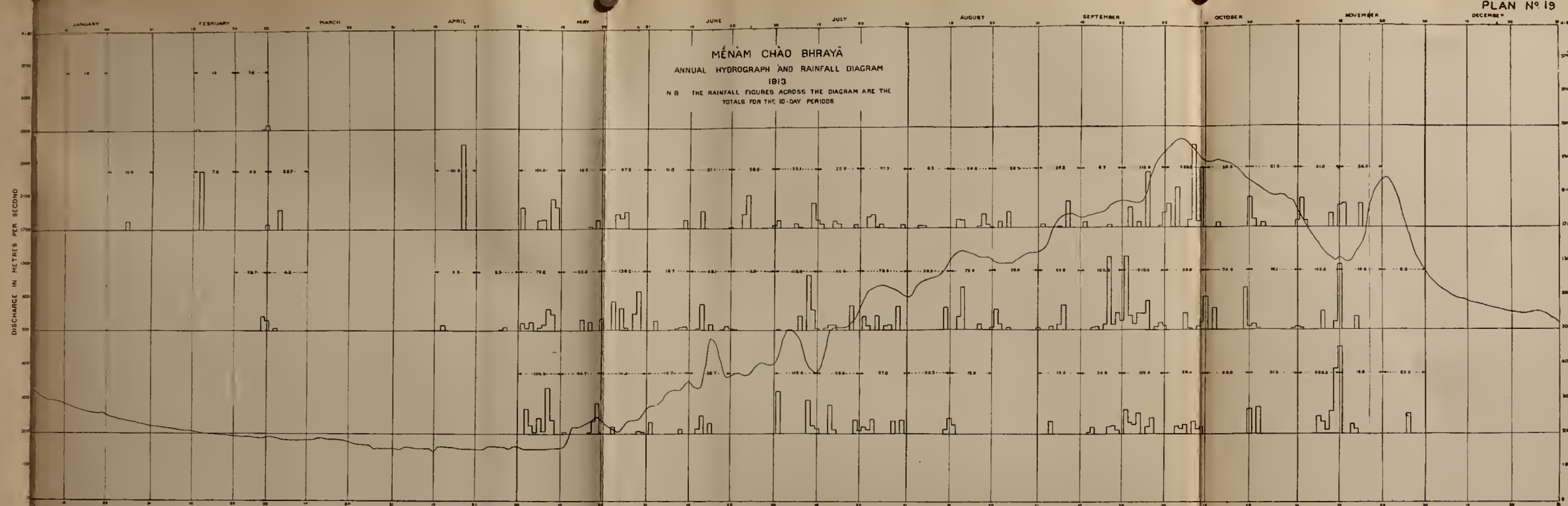
PLAN Nº 18



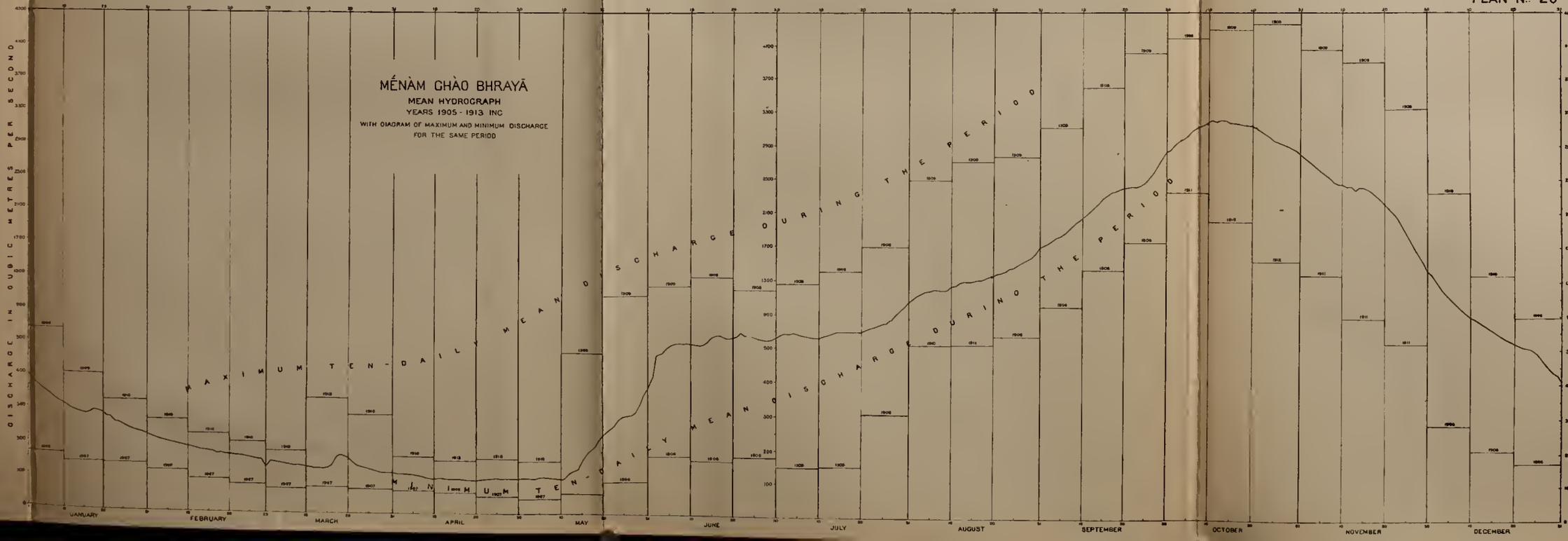

JUNE
M
ANNUAL H
N B THE RAI
47·8
11·0
21·1
39·0
19·7
48·1
19·7
39·7
31
10
31
10
C H A R G
1905
1909
1908
M E
Y
1906
1906
1906

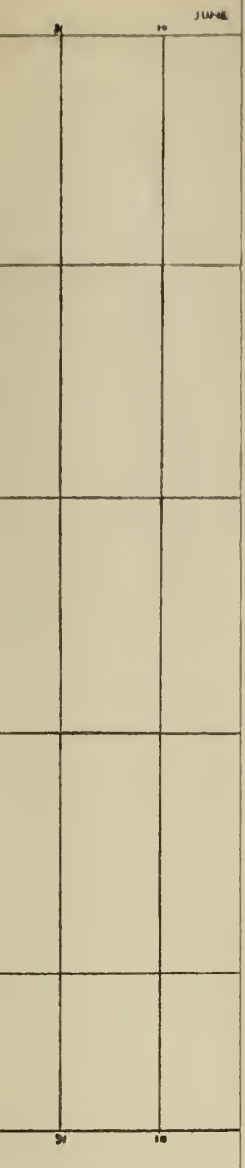
SHEET Nº 8

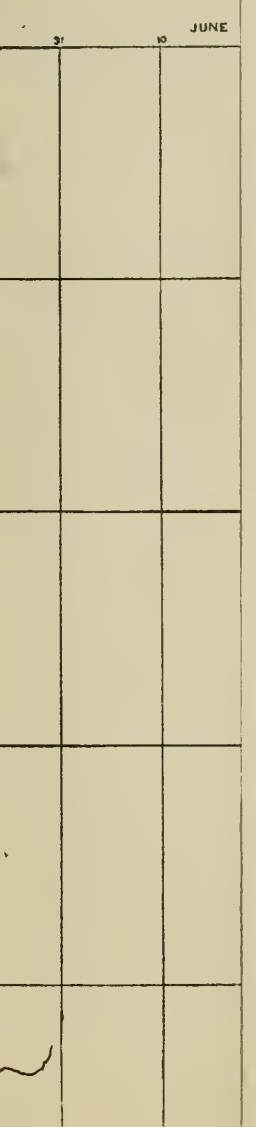
PLAN Nº 19



PLAN Nº 20

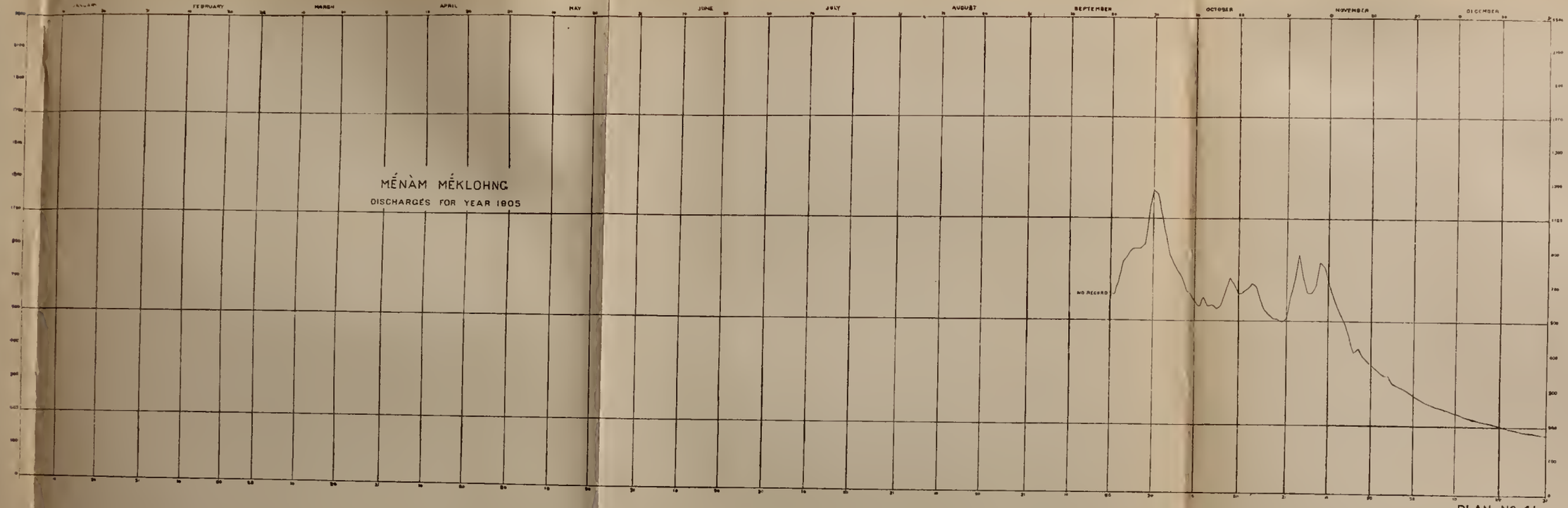



JUNE

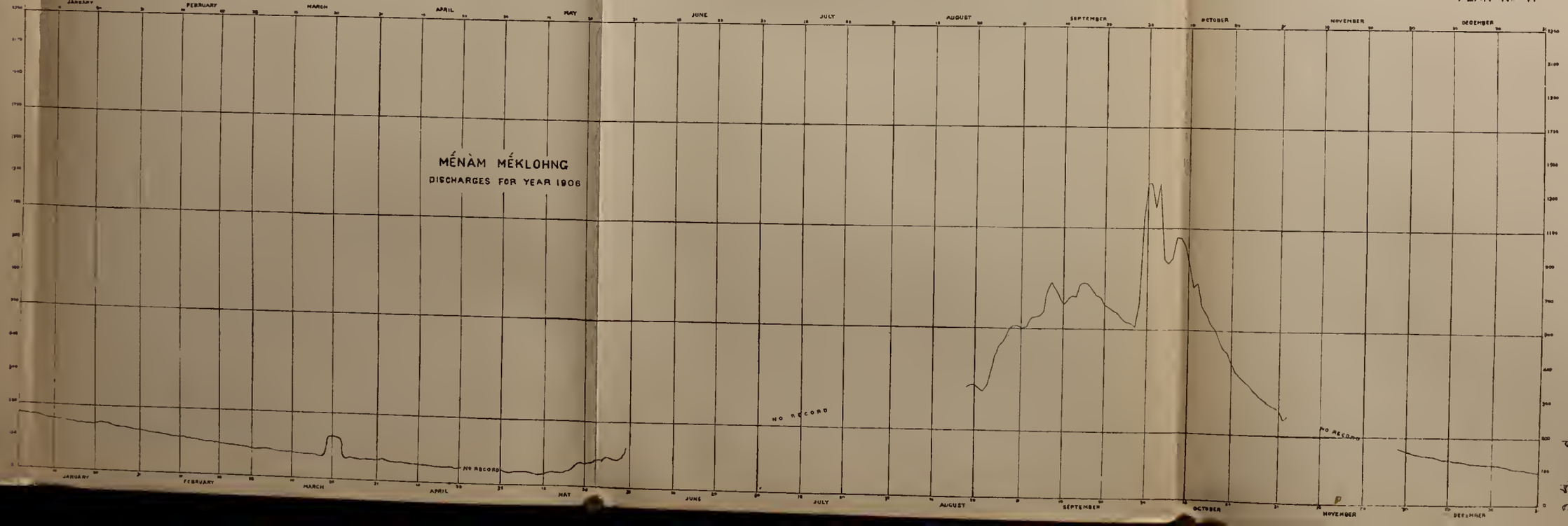

JUNE

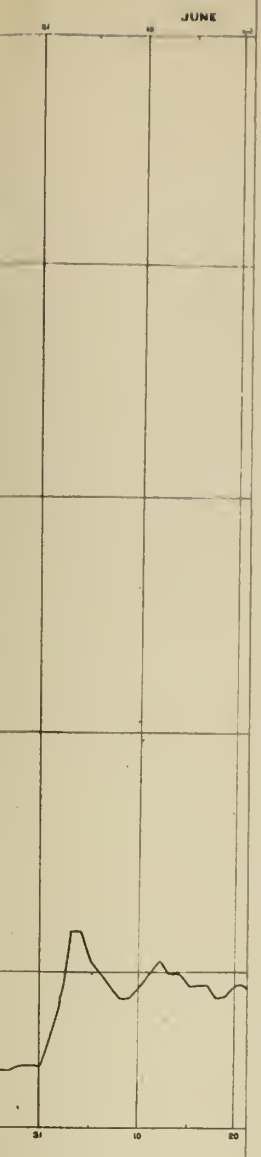
SHEET Nº 9

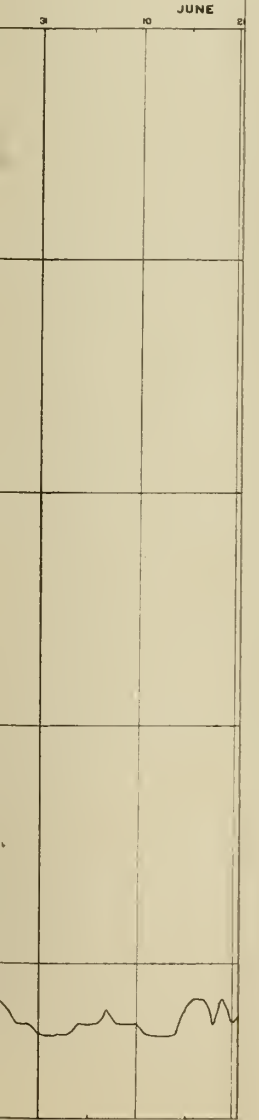
PLAN Nº 40



PLAN Nº 41

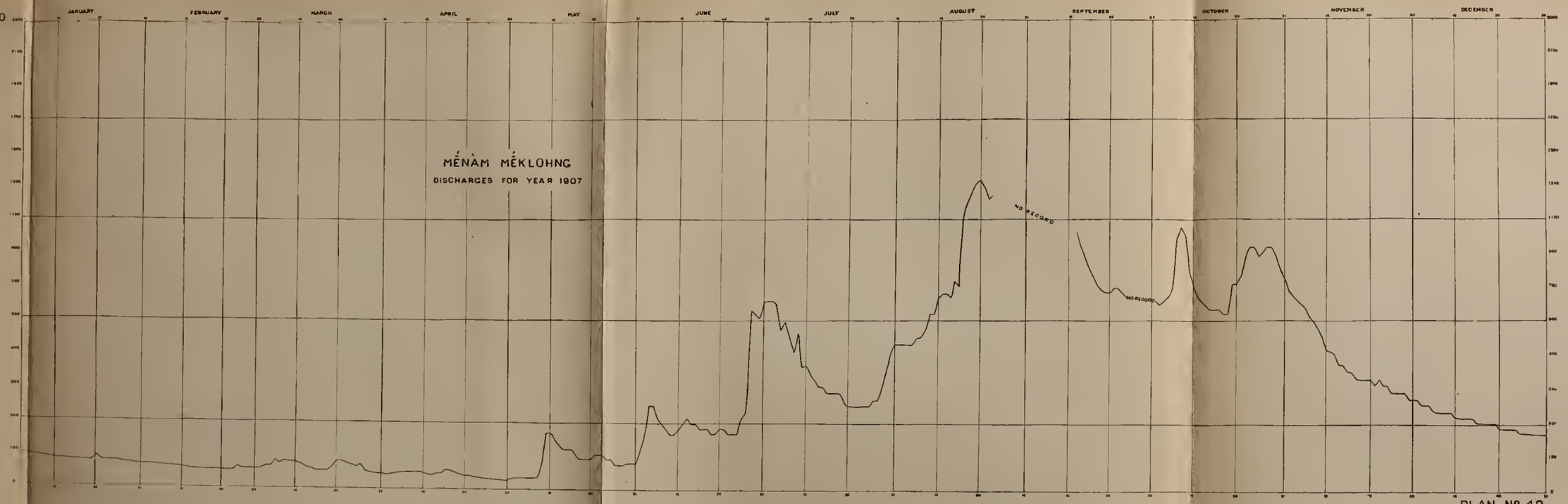



JUNE

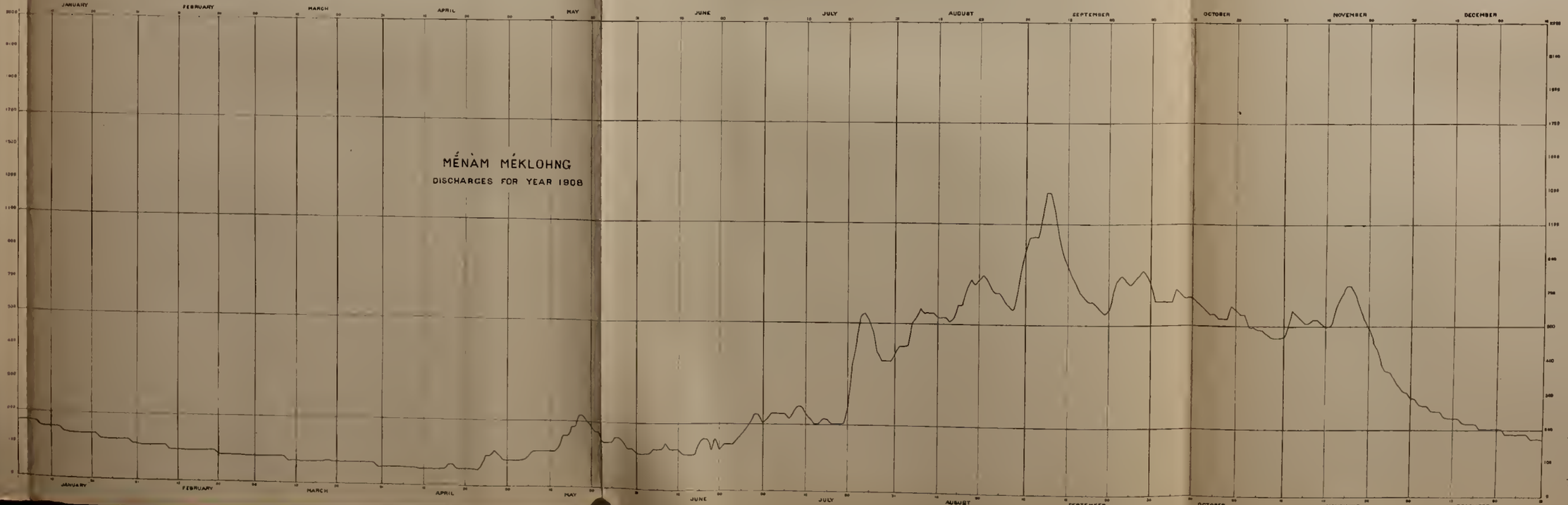

JUNE

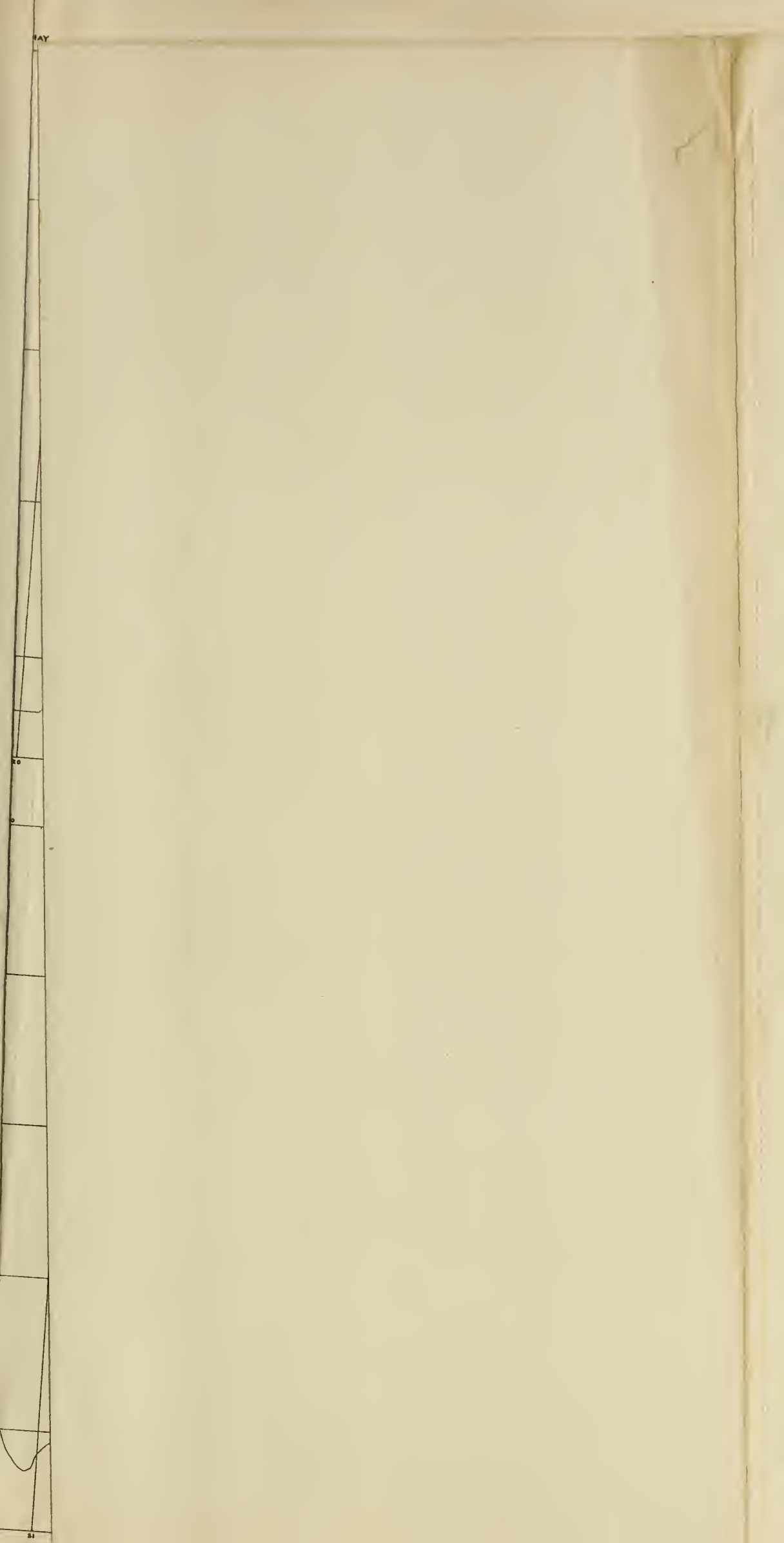
SHEET Nº 10

PLAN Nº 42



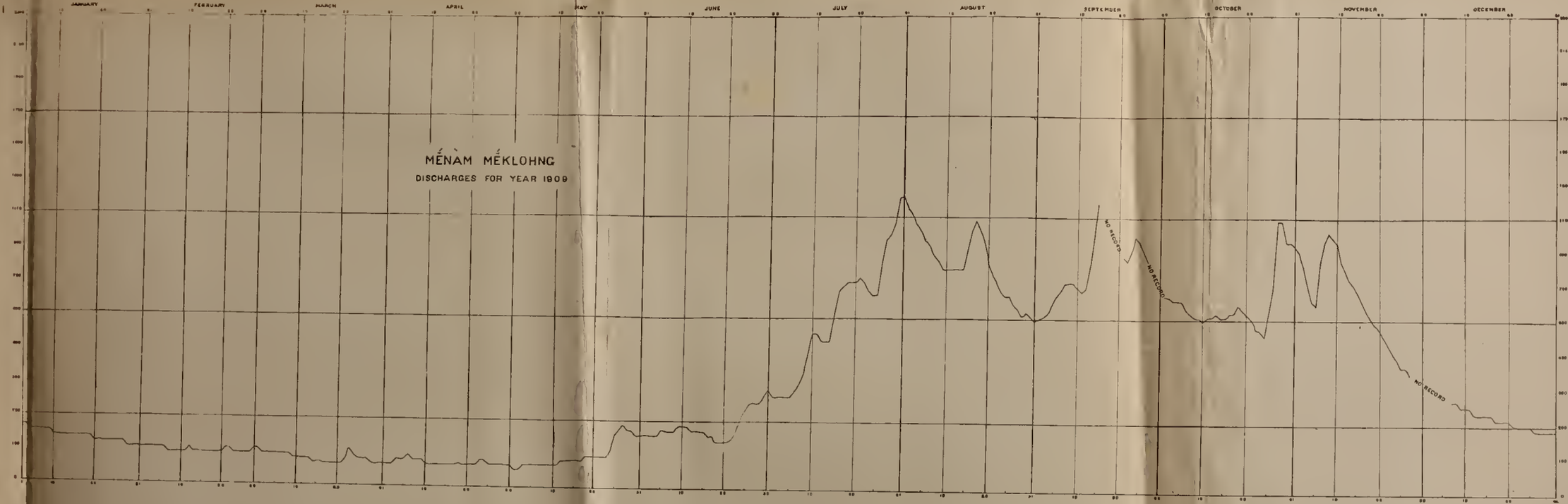
PLAN Nº 43



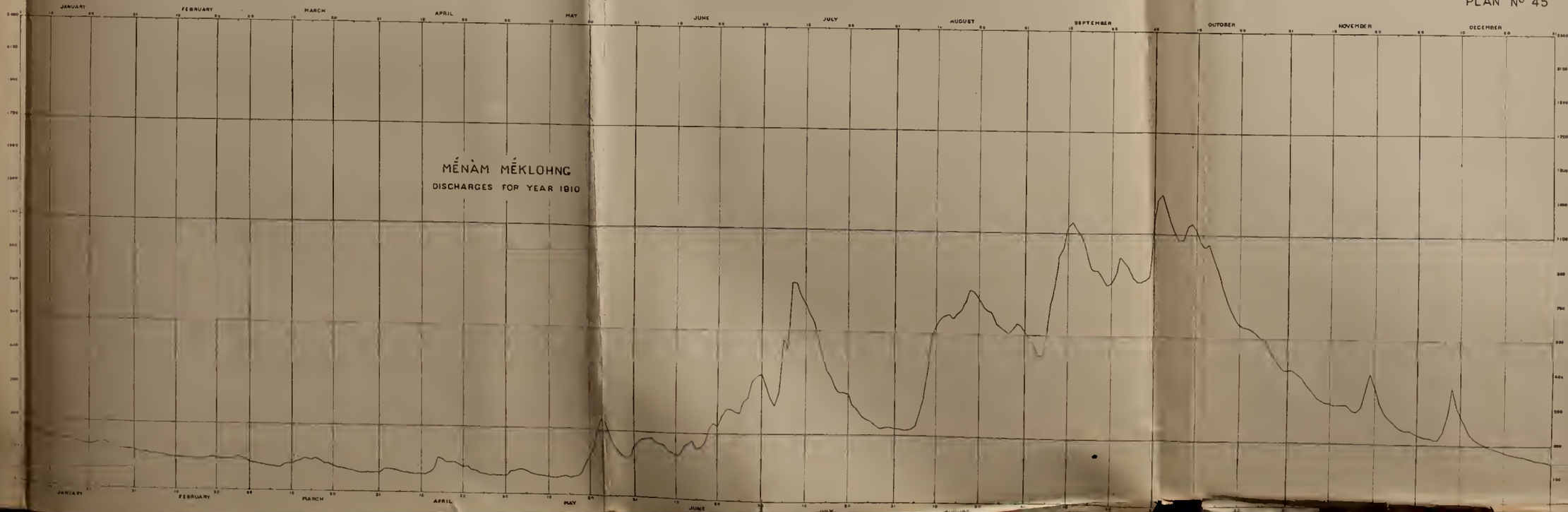


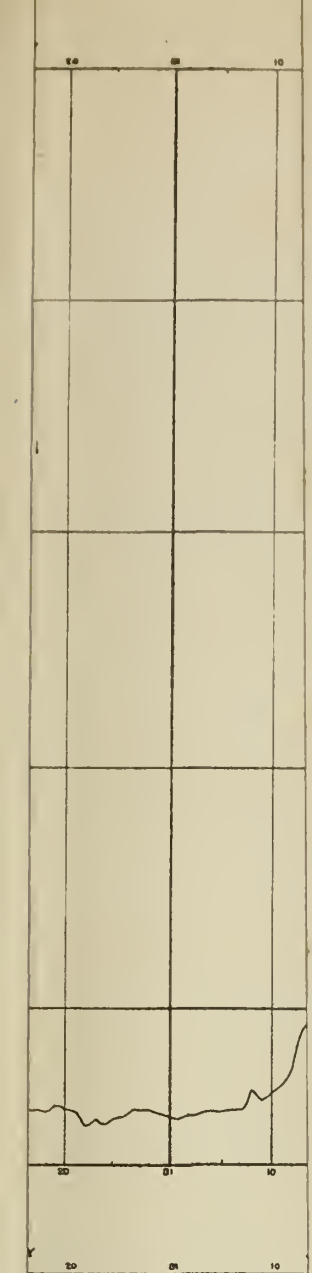
SHEET Nº 11

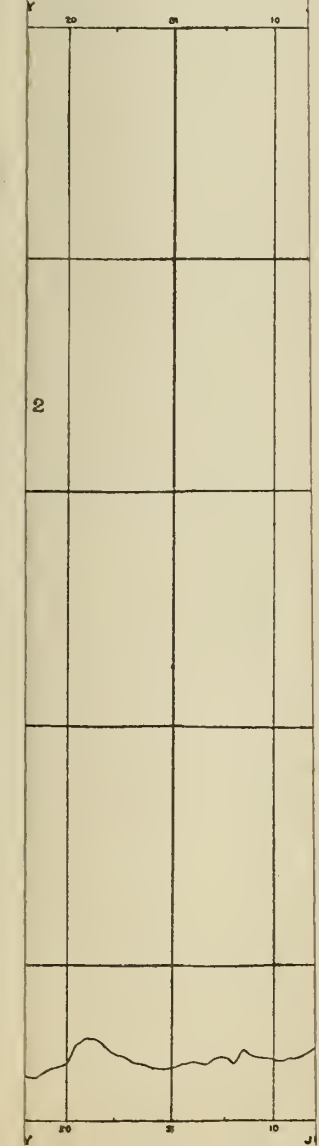
PLAN Nº 44



PLAN Nº 45

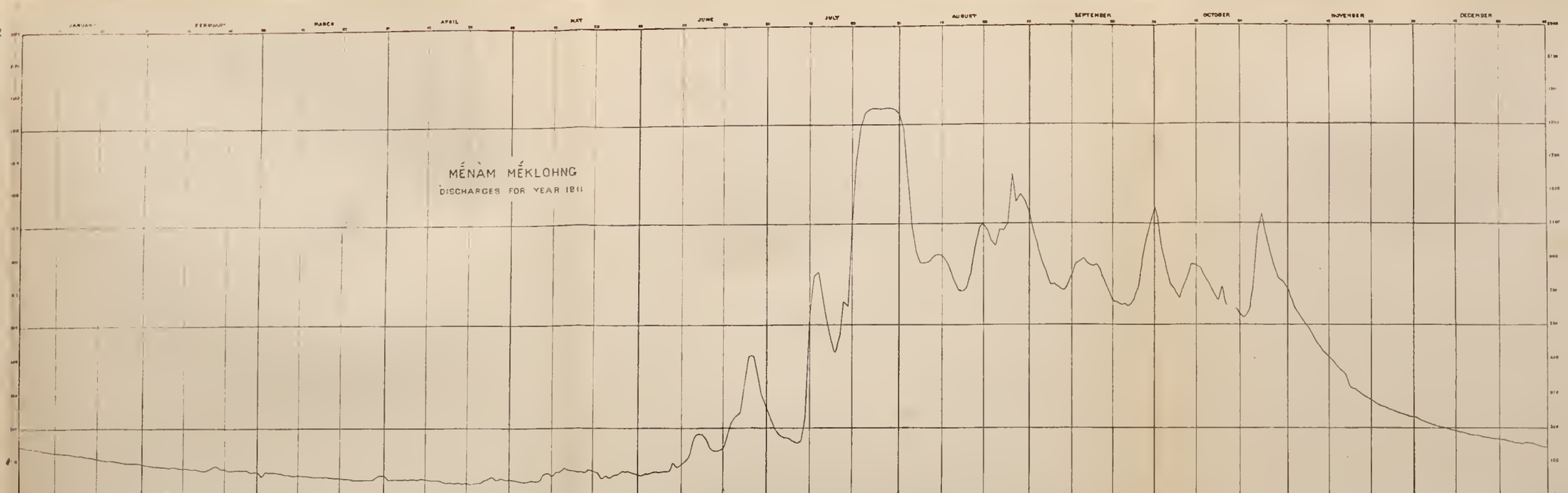




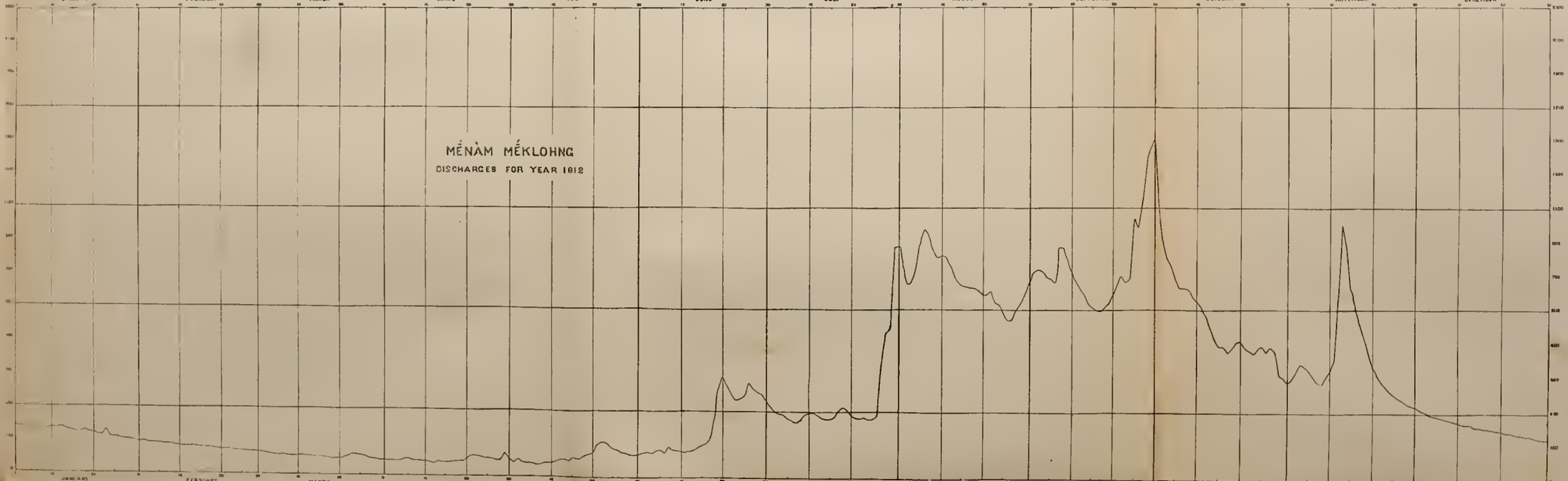


PLAN Nº 46

SHEET Nº 12



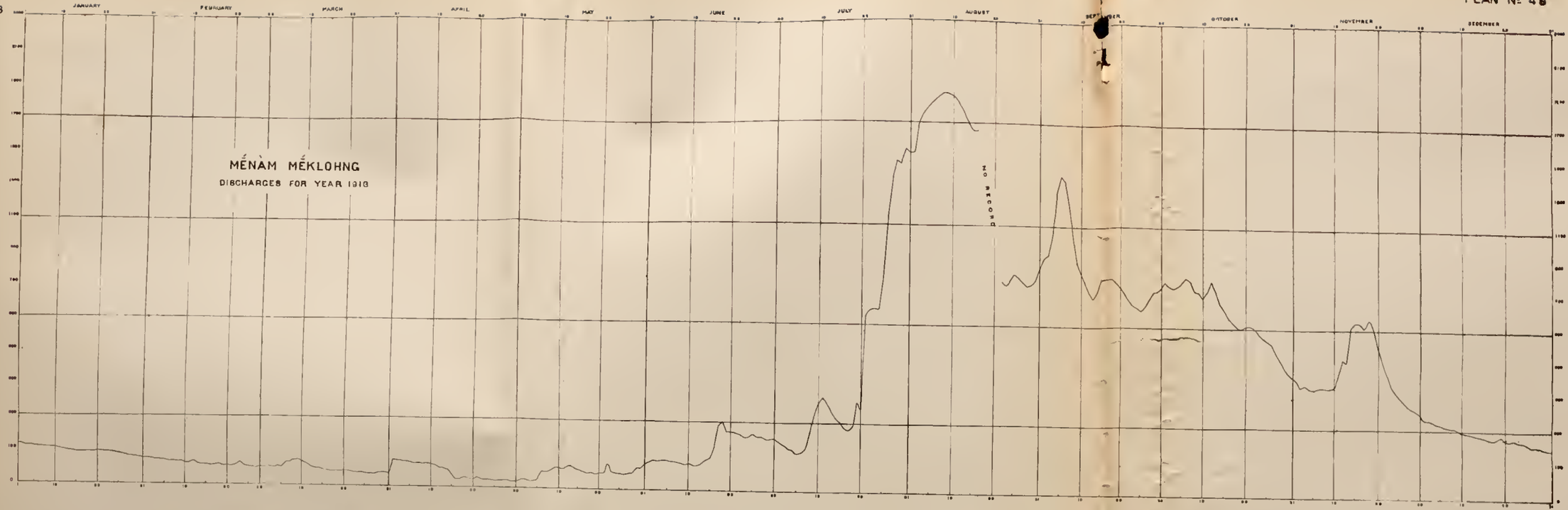
PLAN Nº 47



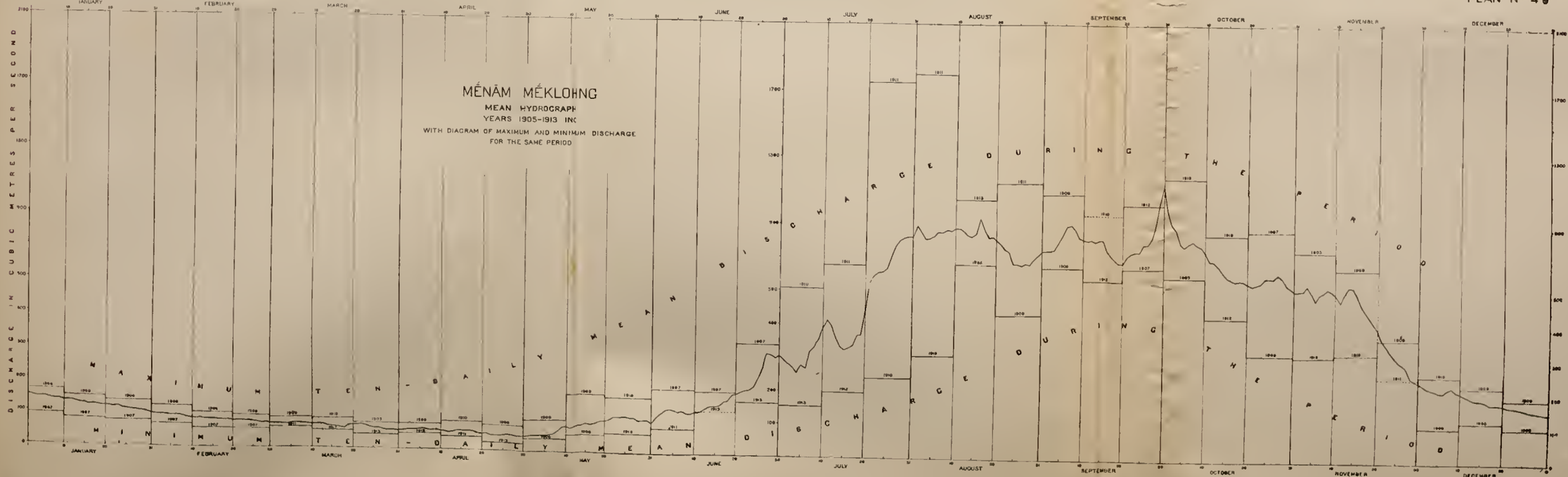
กรมทางหลวงกระทรวงคมนาคม
ปี พ.ศ. ๒๔๕๕

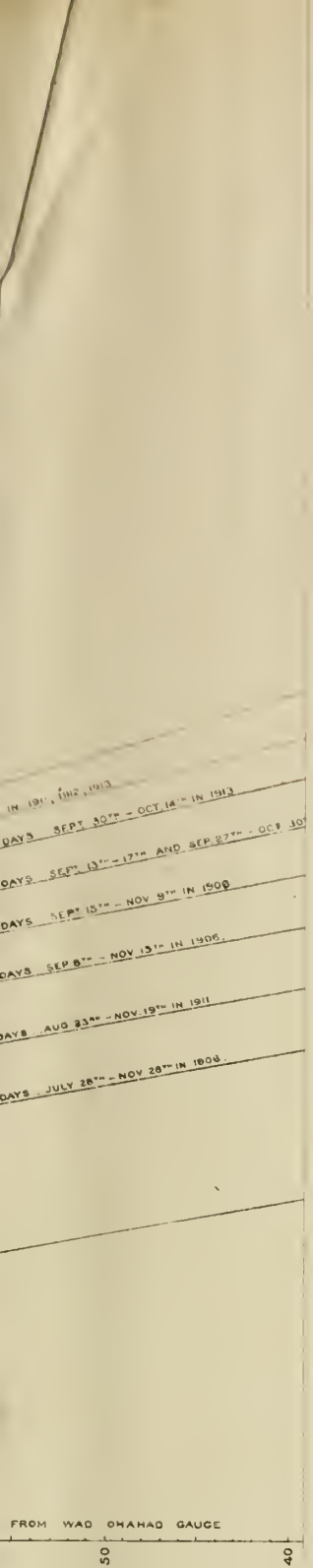
SHEET Nº 13

PLAN Nº 48



PLAN Nº 49




IN 191 , 1912 , 1913
DAYS SEPT 30TH - OCT 14 TH IN 1913
DAYS SEPT 13TH - 17TH AND SEP 27TH - OCT 30
DAYS SEPT 15TH - NOV 9TH IN 1908
DAYS SEP 8TH - NOV 13TH IN 1906.
DAYS AUG 23RD - NOV 19TH IN 1911
DAYS JULY 28TH - NOV 28TH IN 1908.
FROM WAD CHAHAD GAUCE
50
40

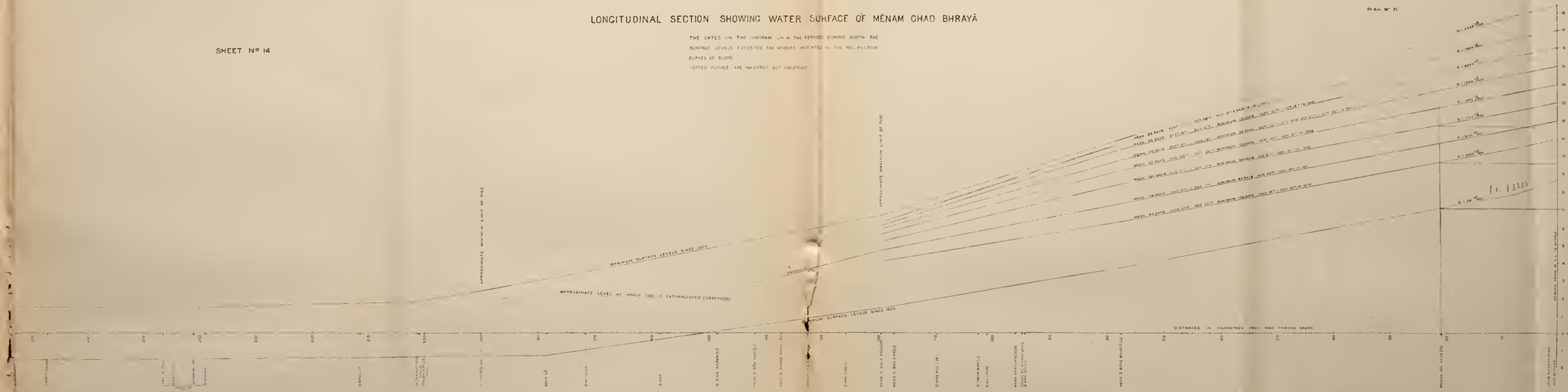
PLAN N° 51

SHEET N° 14

LONGITUDINAL SECTION SHOWING WATER SURFACE OF MÊNAM CHAO BHRAYÄ

THE DATES ON THE DIAGRAM SHOW THE PERIODS DURING WHICH THE SURFACE LEVELS EXCEEDED THE HEIGHTS INDICATED BY THE RESPECTIVE CURVES OF SLOPE

DOTTED CURVES ARE INFERRED NOT OBSERVED


APPROXIMATE MINIMUM LIMIT OF TIDE
APPROXIMATE MAXIMUM LIMIT OF TIDE
MAXIMUM SURFACE LEVELS SINCE 1905
APPROXIMATE LEVEL AT WHICH TIDE IS EXTINGUISHED (OBSERVED)
MINIMUM SURFACE LEVELS SINCE 1905
DISTANCES IN KILOMETRES FROM WAT PRAKHO GAUGE
MEAN SEA LEVEL

1.5 | 22.08 | 1.5
15
50
4.5

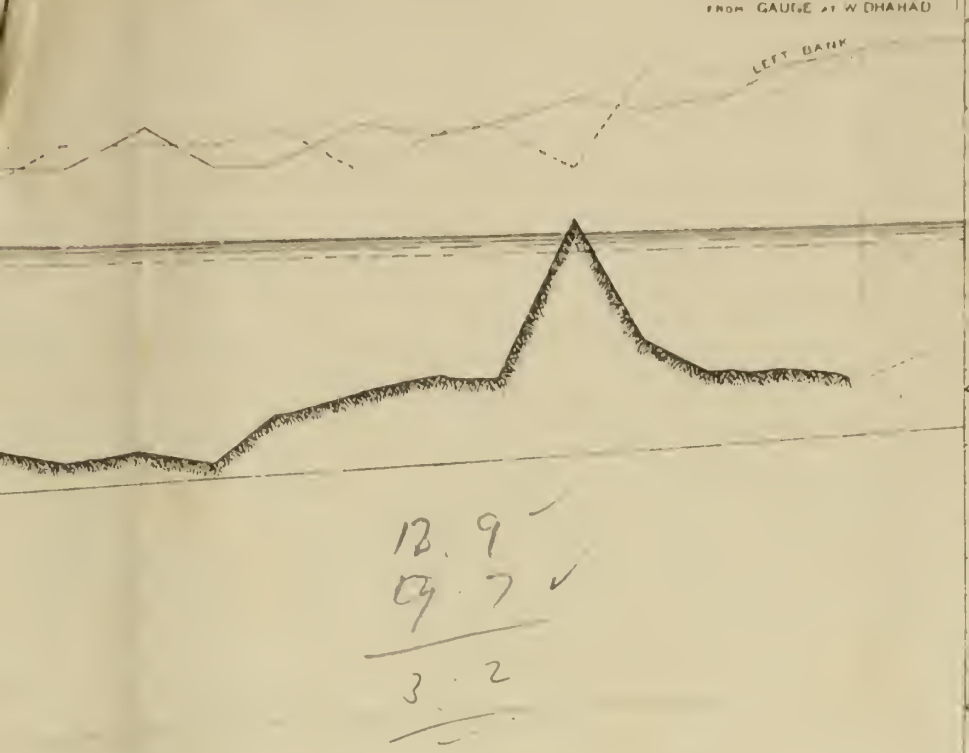
14.13335

Photographic Survey Office
Ref. No. 14/1/1

PLAN Nº 53

HEAD REGULATOR and LOCK at 1·25 KILOMS down stream from GAUGE at W DHAHAD

MÉNÀM CHAO BHRAYÀ
RIVER LEVELS



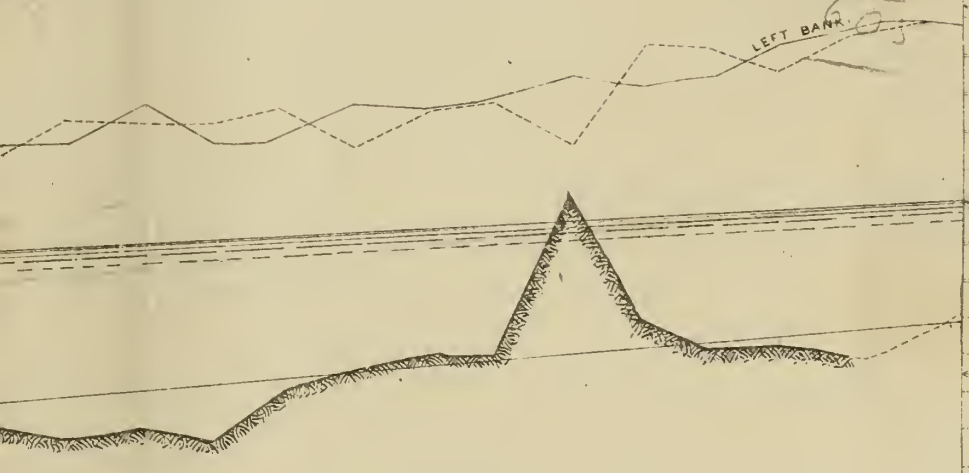
MAXM FLOOD LEVEL

17 SEP 22ND OCT 28TH 36 DAYS
16 SEP 16TH NOV 8TH 53 ..
15 SEP 2ND NOV 19TH 78 ..
14 AUG 20TH NOV 26TH 97 ..
13 AUG 7TH DEC 7TH 122 ..
12 JUL 12TH DEC 11TH 152 ..
11 JUNE 23RD DEC 22ND 182 ..

MINIMUM WATER

0 DATUM M.S.L

PLAN Nº 54



MAXM FLOOD LEVEL

17 SEP 22ND OCT 28TH 36 DAYS
16 SEP 16TH NOV 8TH 53 ..
15 SEP 2ND NOV 19TH 78 ..
14 AUG 20TH NOV 26TH 97 ..
13 AUG 7TH DEC 7TH 122 ..
12 JUL 12TH DEC 11TH 152 ..
11 JUNE 23RD DEC 22ND 182 ..

MINIMUM WATER

0 DATUM M.S.L

15·032	14·374	6·524	14·860	15·493	6·842	15·062	14·318	6·528	15·410	14·568	7·769
14·350	15·545	8·455	15·303	15·291	8·871	15·558	15·762	8·739	14·404	16·301	13·148
17·130	15·981	9·788	17·076	16·330	8·989	16·471	17·164	9·120	17·523	17·346	8·844

20 10 0 REDUCED DISTANCE

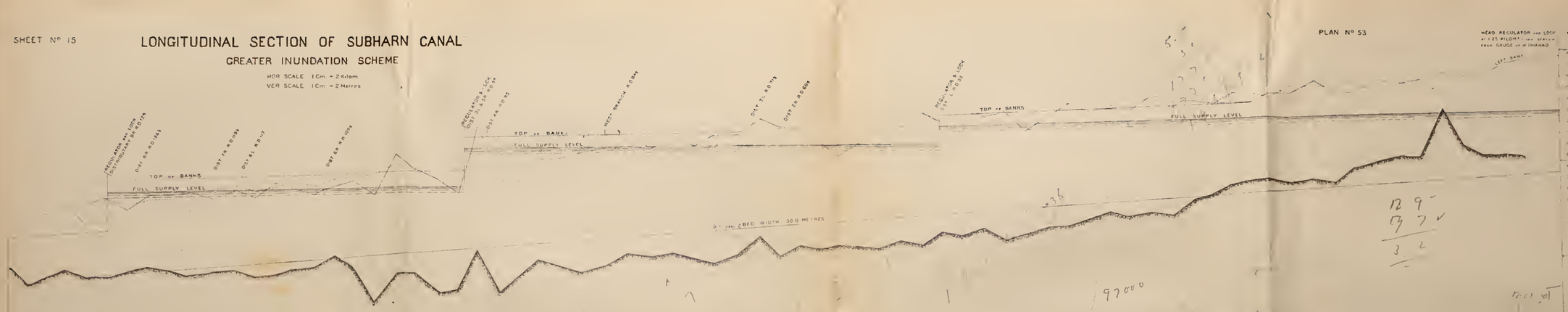
DISCHARGE REQD IN M³/SEC
M.S.L RIVER BED
.. TOP OF RIGHT BANK
.. TOP OF LEFT BANK

SHEET Nº 15

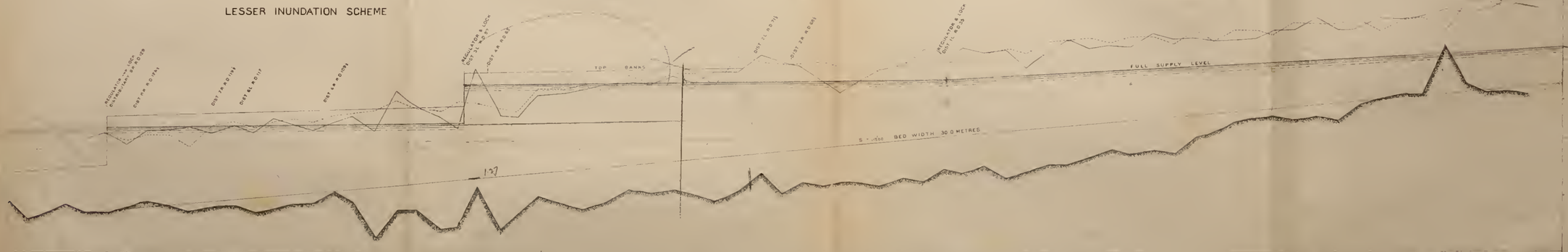
LONGITUDINAL SECTION OF SUBHARN CANAL

GREATER INUNDATION SCHEME

HOR SCALE 1 Cm = 2 Kilom
VER SCALE 1 Cm = 2 Metres



LESSER INUNDATION SCHEME



DISCHARGE REQ'd in M³/sec
M.S.L. RIVER BED
— TOP OF RIGHT BANK
.. TOP OF LEFT BANK
0 REDUCED DISTANCE

SUBHARN MAIN LINE LEVELS
SUBHARN DESIGNED

11
10
FULL SUPPLY LEVEL
IN GREATER INUNDATION
& BARRAGE SCHEMES
8
7
6
5
4
3
2
DESIGNED BED LEVEL
1
0 DATUM
NATURAL BED LEVEL
IN GREATER INUNDATION
& BARRAGE SCHEMES.

SYPHON R.D 73.0

0.94	3.10	2.16	1.02	3.12	2.10	1.10	3.25	2.15	1.18	3.40	2.22	1.26	3.48	2.22

1:20 1:50

DIGGING
R L N S.
R.L.BED
60 LAND WIDTH
BANK WIDTH
0.96% CRITICAL VELOCITY RATIO
23.3 M³/sec ³/sec F.S.DISCHARE AT HEAD OF REACH
FULL SUPPLY DEPTH
9.8M.
BED WIDTH IN METRES
70
0 REDUCED DISTANCE

DIST. 41 (R.D. 24)

24.132	8.902	7.699	1.940
25.248	8.705	8.656	2.409
26.114	8.629	8.651	2.674
27.180	9.300	8.526	3.623

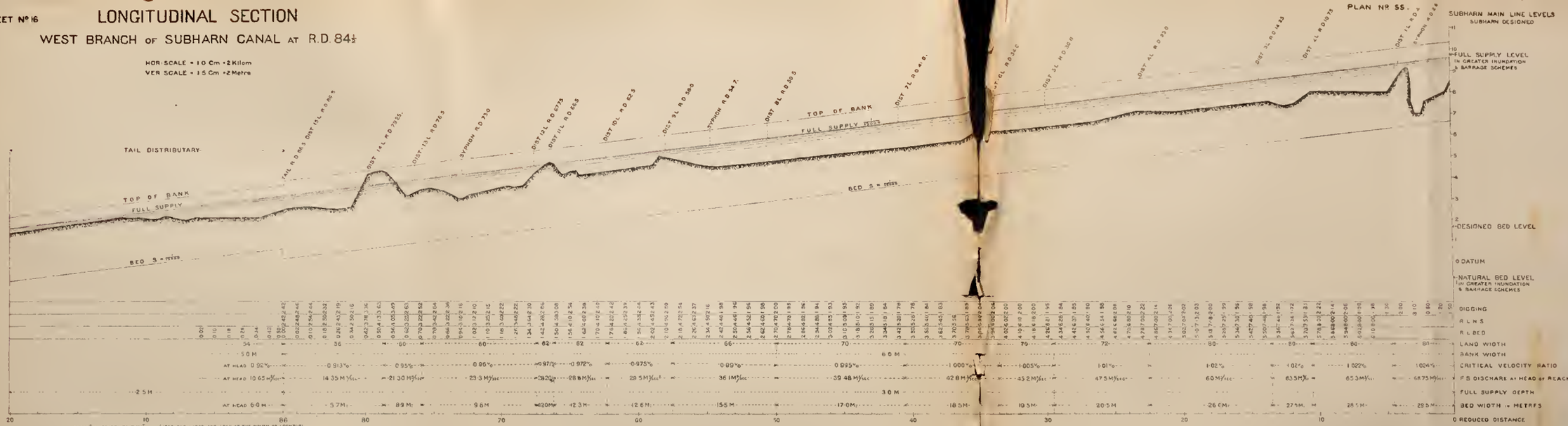
พิมพ์การแผนกช่างทางน้ำ
ปี พ.ศ. ๒๐๙๙

SHEET Nº 16

LONGITUDINAL SECTION

WEST BRANCH OF SUBHARN CANAL AT R.D. 84½

HOR: SCALE = 1·0 Cm = 2 Kilom
VER SCALE = 1·5 Cm = 2 Metre

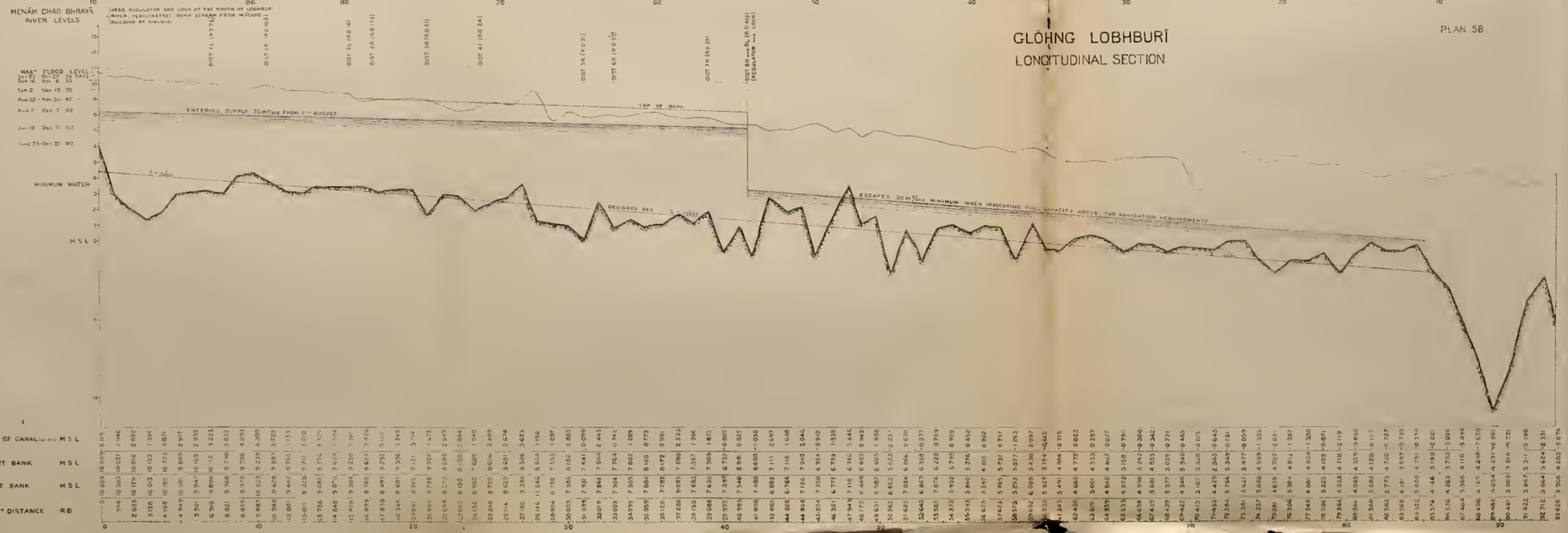


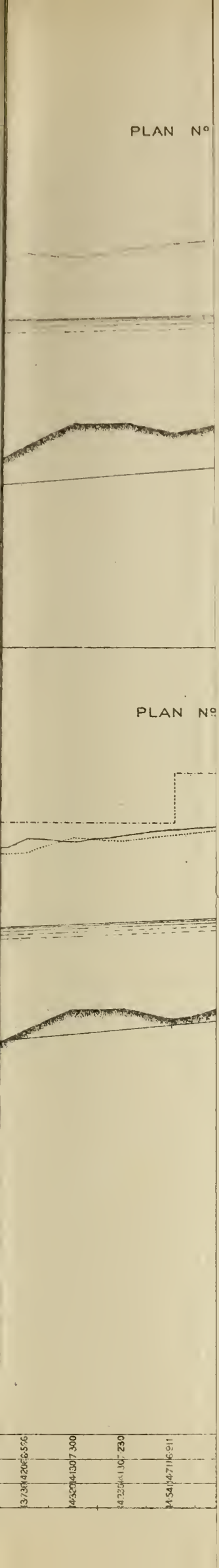
PLAN Nº 55.

PLAN 58.

GLÖHNG LOBHBURÍ

LONGITUDINAL SECTION


MENÁM CHAO BHRAYÁ RIVER LEVELS
HEAD REGULATOR AND LOCK AT THE MOUTH OF LOBHBURI
ENTERING SUPPLY 75 M³/sec FROM 21st AUGUST
TOP OF BANK
MINIMUM WATER
DESIGNED BED
ESCAPES 30 M³/sec MINIMUM WHEN IRRIGATING FULL CAPACITY ABOVE, FOR NAVIGATION REQUIREMENTS
M.S.L. 0
BED OF CANAL
RIGHT BANK
LEFT BANK
REDUCED DISTANCE


PLAN Nº
PLAN Nº

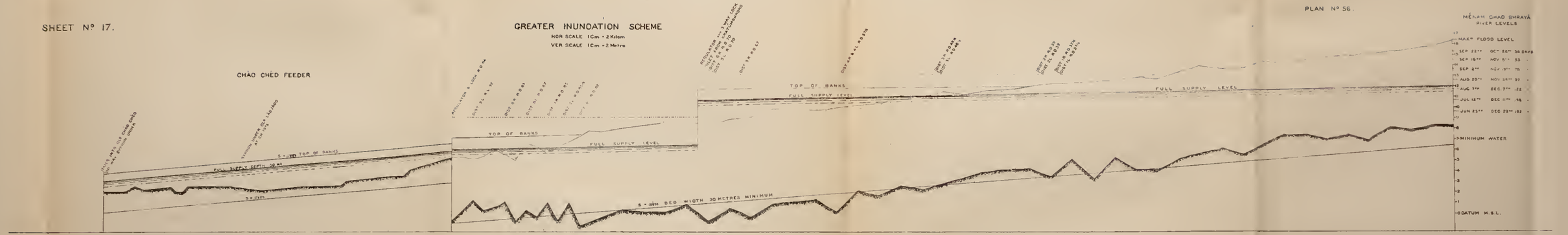
LONGITUDINAL SECTION OF MÉNAM NÒI CANAL

SHEET Nº 17.

PLAN Nº 56.

GREATER INUNDATION SCHEME

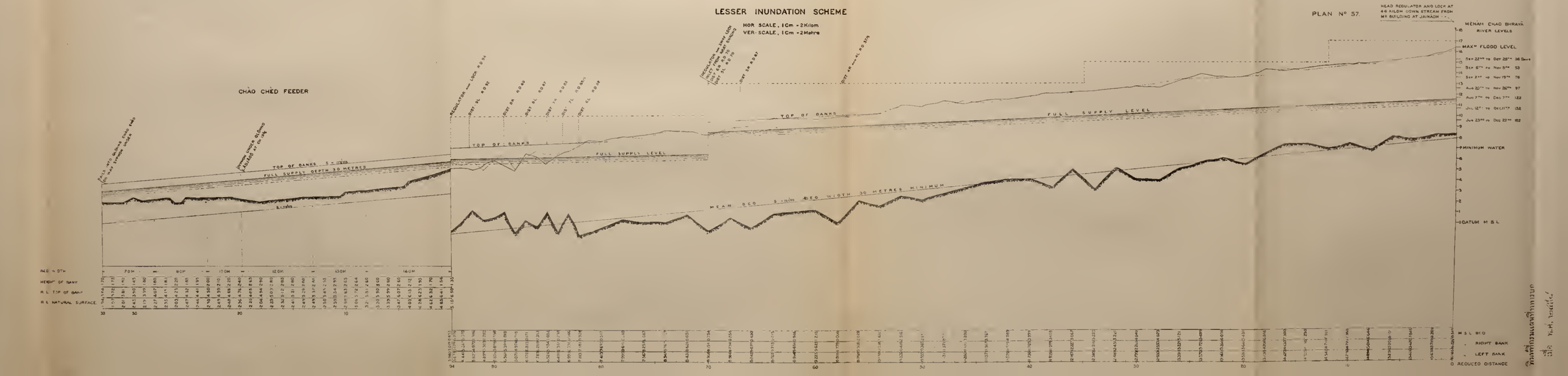
HOR SCALE 1Cm = 2 Kilom
VER SCALE 1Cm = 2 Metre

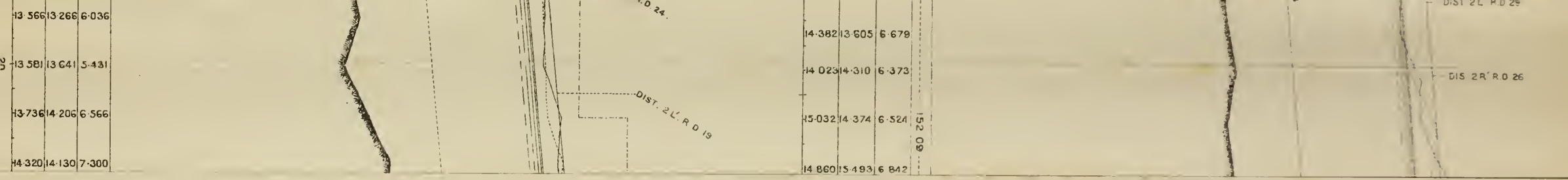

CHAO CHED FEEDER
REGULATOR & LOCK AT KM 0.00
REGULATOR & LOCK AT KM 4.00 (PROPOSED)
TOP OF BANKS
FULL SUPPLY LEVEL
FULL SUPPLY DEPTH 30 MET
BED WIDTH 30 METRES MINIMUM
MÉNAM CHAO BHRAYÁ RIVER LEVELS
MAXm FLOOD LEVEL
MINIMUM WATER
DATUM M.S.L.

PLAN Nº 57.

LESSER INUNDATION SCHEME

HOR SCALE, 1Cm = 2 Kilom
VER SCALE, 1Cm = 2 Metre




13·566 13·266 6·036
13·581 13·641 5·431
13·736 14·206 6·566
14·320 14·130 7·300
DIST. 2 L. R.D 24
DIST. 2 L. R.D 19
14·382 13·605 6·679
14·023 14·310 6·373
15·032 14·374 6·524
14·860 15·493 6·842
152·09
DIST 2 L R.D 29
DIS 2 R R.D 26

SHEET Nº 18

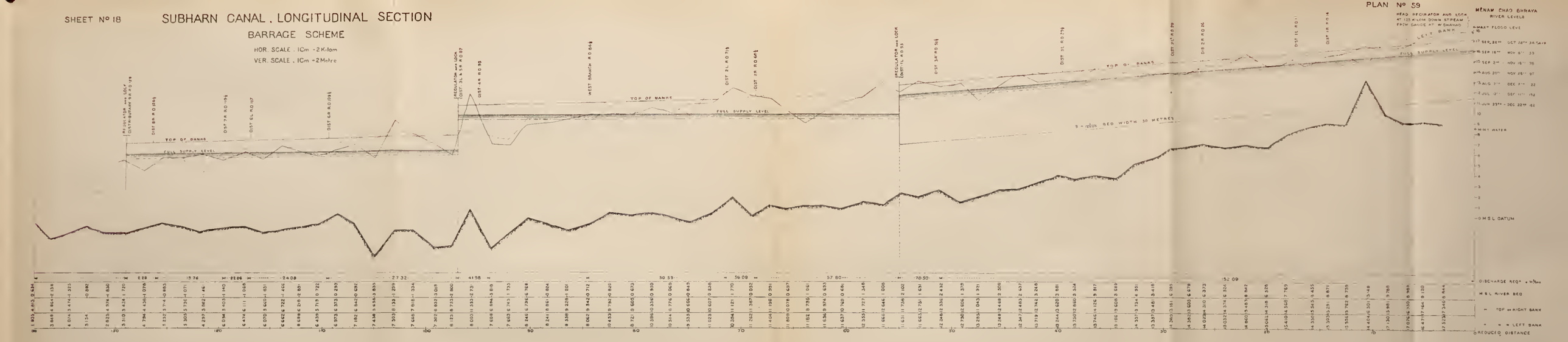
SUBHARN CANAL . LONGITUDINAL SECTION

BARRAGE SCHEME

HOR. SCALE . 1Cm = 2 Kilom

VER. SCALE . 1Cm = 2 Metre

PLAN Nº 59


REGULATOR and LOCK (DIST 0 + 0.00)
DIST 8R RD 1894
DIST 7R RD 194
DIST EL RD 137
DIST 6R RD 1918
REGULATOR and LOCK (DIST 3L + 5R RD 87)
DIST 4R RD 93
WEST BRANCH RD 868
DIST 2L RD 775
DIST 3R RD 665
REGULATOR and LOCK (DIST 4L + 0.00)
DIST 3R RD 961
DIST 2L RD 734
DIST 1R RD 1
DIST 1R RD 1014
TOP OF BANKS
FULL SUPPLY LEVEL
B = 1250 BED WIDTH 30 METRES
MÉNAM CHAO BHRAYA RIVER LEVELS
MAXIMUM FLOOD LEVEL
LEFT BANK
SEP 22ND - OCT 28TH 36 DAYS
SEP 16TH - NOV 18TH 53
SEP 2ND - NOV 15TH 76
AUG 20TH - NOV 24TH 97
AUG 7TH - DEC 7TH 122
JUL 31ST - DEC 11TH 163
JUN 23RD - DEC 22ND 182
MINIMUM WATER
0 M S L DATUM
DISCHARGE REQD = m³/sec
M S L RIVER BED
= TOP OF RIGHT BANK
= = = LEFT BANK
REDUCED DISTANCE

PLAN Nº 60.

LONGITUDINAL SECTION OF MÉNAM NÒI CANAL

BARRAGE SCHEME

HOR SCALE 1cm = 2kilom

VER SCALE 1cm = 2metre

CHÀO CHED FEEDER

FALLS INTO CHAO CHED (Cm max. Flow in Nov.)
REGULATOR and LOCK RD 0.00
DIST 5L RD 92
DIST 6R RD 0.00
DIST EL RD 87
DIST 2R RD 0.00
DIST 7L RD 0.00
DIST 8L RD 0.00
REGULATION and LOCK (DIST 5L + 0.00)
DIST 5R RD 0.00
DIST 4L RD 0.00
DIST 3R RD 0.00
DIST 2L RD 0.00
DIST 1L RD 0.00
DIST 4L RD 31
DIST 3L RD 87
DIST 3R RD 0.00
DIST 2L RD 0.00
DIST 1L RD 0.00
DIST 1R RD 0.00
TOP OF BANKS
FULL SUPPLY LEVEL
FULL SUPPLY DEPTH 3.0 M.
ULTIMATE SILTED BED B = 1250 BED WIDTH = 38 METRES
MÉNAM CHAO BHRAYA RIVER LEVELS
MAXIMUM FLOOD LEVEL
SEP 22ND - OCT 28TH 36 DAYS
SEP 16TH - NOV 18TH 53
SEP 2ND - NOV 15TH 76
AUG 20TH - NOV 24TH 97
AUG 7TH - DEC 7TH 122
JUL 31ST - DEC 11TH 163
JUN 23RD - DEC 22ND 182
MINIMUM WATER
DATUM M.S.L
BED WIDTH
HEIGHT OF BANK
R.L. TOP OF BANK
R.L. NATURAL SURFACE
M.S.L. RIVER BED
= TOP OF RIGHT BANK
= = = LEFT BANK
REDUCED DISTANCE

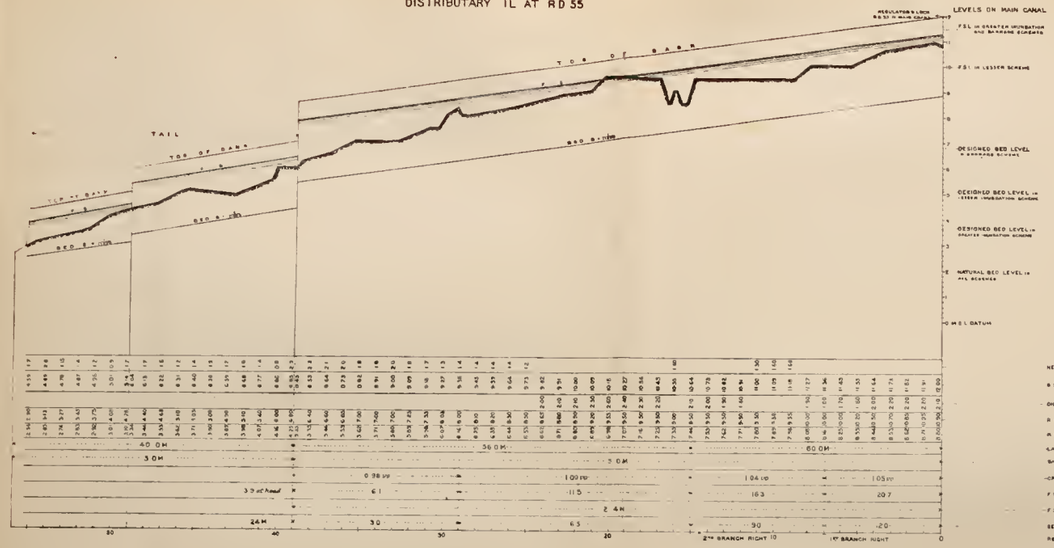
DAM
1.60
10.36
10.45
10.55
10.64
10.73
2.40
2.30
2.20
2.10
2.00
9.50
9.50
9.00
9.50
9.50
7.16
7.25
7.33
7.44
7.53
M.
2ND
SCHEME
0.8
50

SHEET Nº 19

PLAN Nº 61

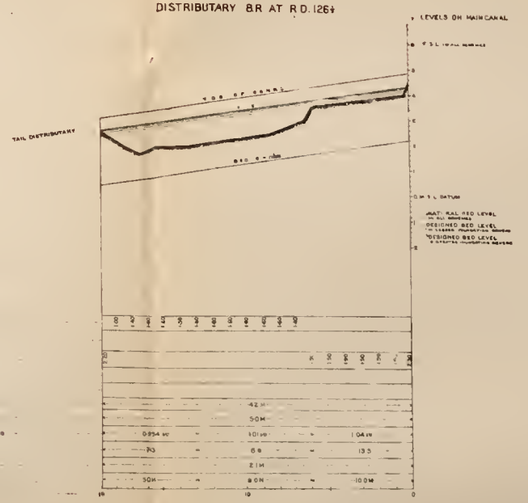
LONGITUDINAL SECTIONS
SUBHARN DISTRIBUTARIES

DISTRIBUTARY IL AT RD 55



PLAN Nº 63

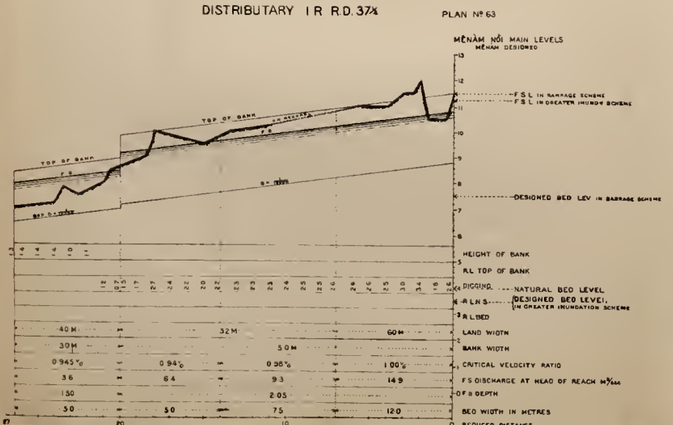
DISTRIBUTARY 8R AT R.D. 126+



MĒNAM NÕI CANAL
LONGITUDINAL SECTIONS

DISTRIBUTARY 1R R.D. 37+

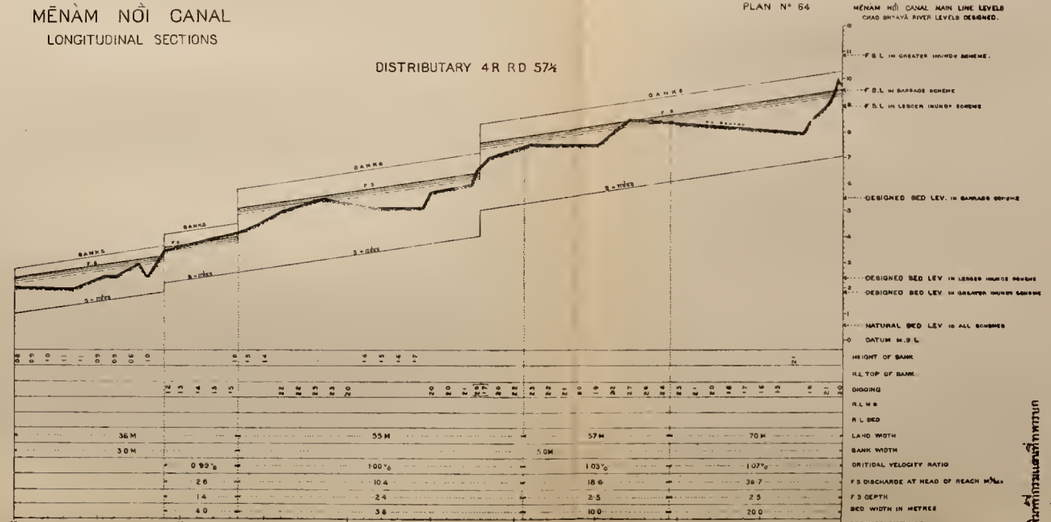
PLAN Nº 63

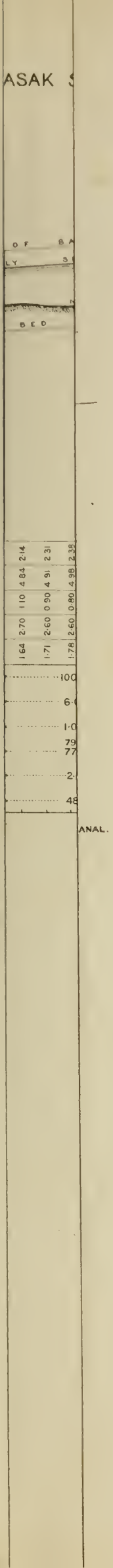


PLAN Nº 64

MĒNAM NÕI CANAL MAIN LINE LEVELS
CHAO PHRAYA RIVER LEVELS DESIGNED.

DISTRIBUTARY 4R RD 57+



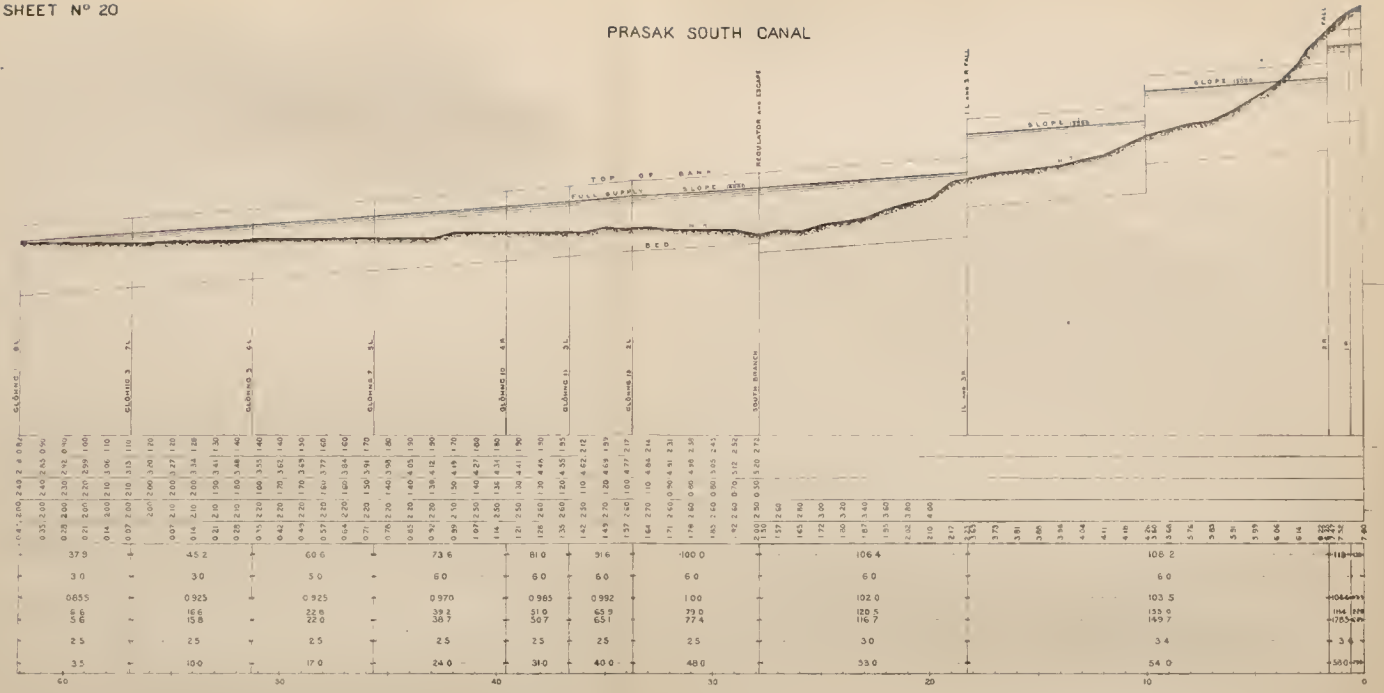


LIBRARY
OF THE
UNIVERSITY OF ILLINOIS

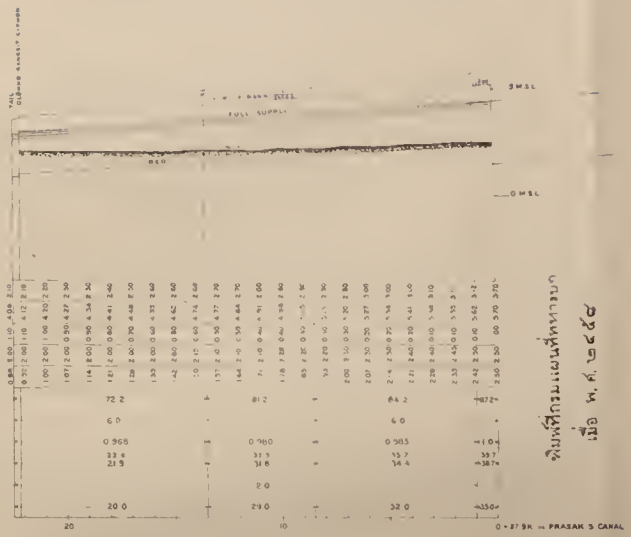
SHEET Nº 20

PLAN Nº 65

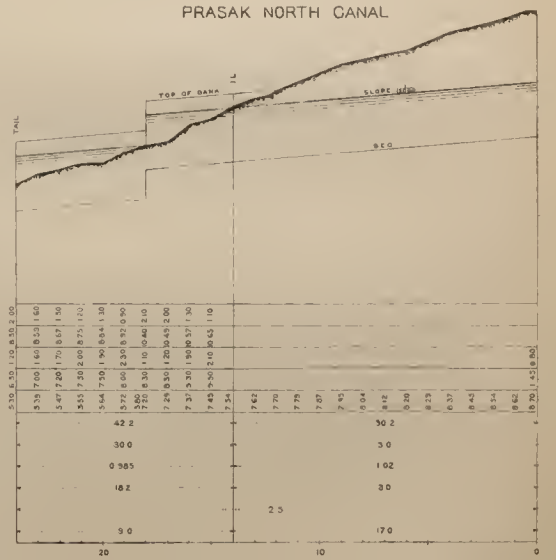
PRASAK SOUTH CANAL



SOUTH BRANCH CANAL (GLÒHNG 13)



PRASAK NORTH CANAL

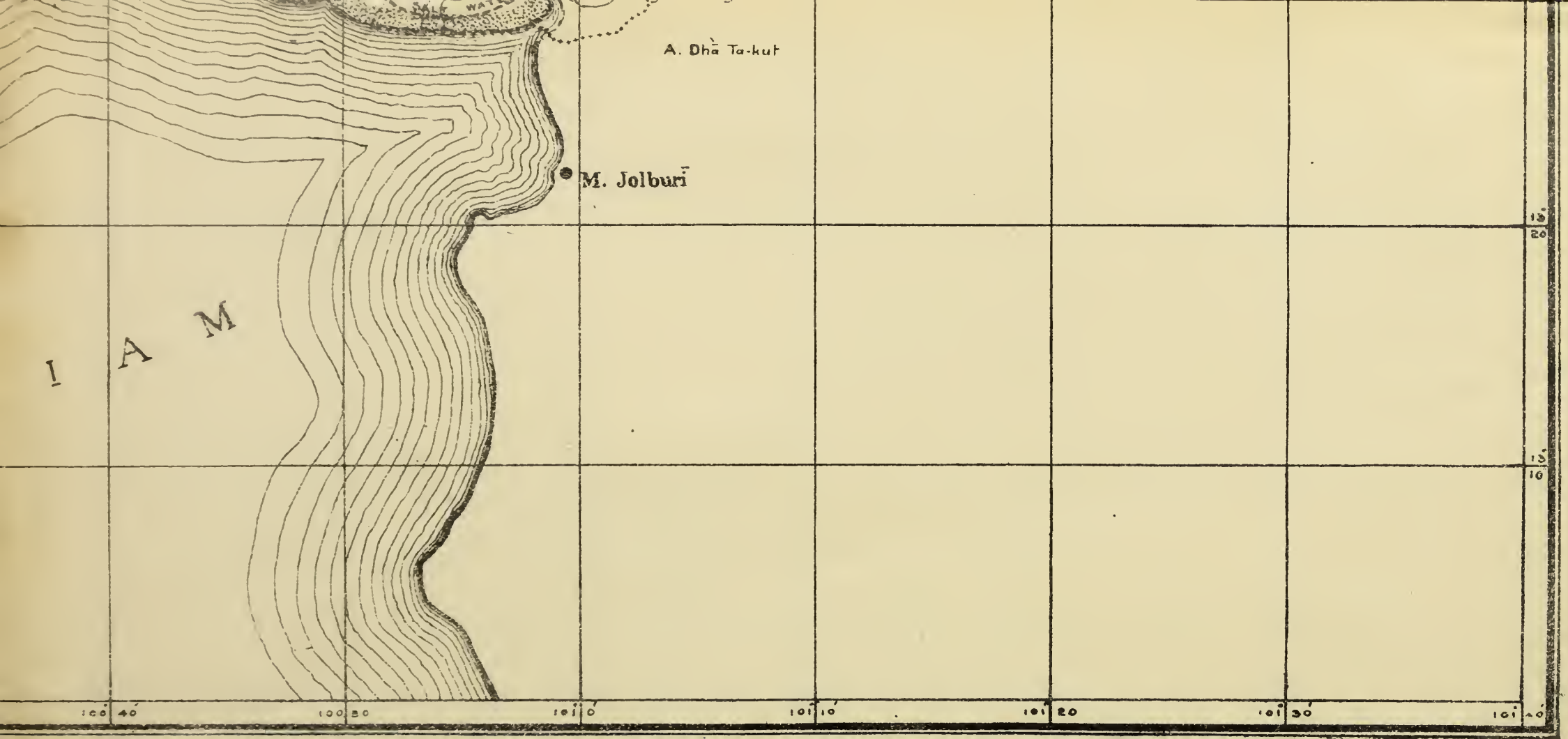


LONGITUDINAL SECTIONS OF PRASAK CANALS

SCALES

HORIZ SCALE - 1:50,000

VERTICAL = 1:100



printed at The Royal Survey Department.

15292

IRRIGATION MAP

SHOWING WORKS COMPLETED

AND

WORKS PROPOSED AND IN PROGRESS

IN THE PLAIN OF

CENTRAL SIAM

SCALE: 1: 400,000

1.	SITE OF BARRAGE ON THE MENAM CHAO PHYA	PROPOSED
2.	PRASAK SOUTH CANAL SCHEME	COMPLETED
3.	JIENGRAK AND BANG HIA, DRAINAGE SCHEME	IN PROGRESS
4.	MENAM SUBHAN PROJECT.	PROPOSED
4A.	PORTION OF MENAM SUBHAN SCHEME	IN PROGRESS
5.	MENAM NOI SCHEME	PROPOSED
6.	MENAM LOPHBURI SCHEME	PROPOSED
7.	MENAM MEKLONG SCHEME	PROPOSED
8.	MENAM PETCHABURI PROJECT.	PROPOSED
9.	PRASAK NORTH CANAL SCHEME	PROPOSED
10.	MENAM NAGORN NAYOK SCHEME	PROPOSED

GULF OF SIAM

TYPE MAP NO. 15292 NOTE NO. 3775

UNIVERSITY OF ILLINOIS-URBANA
3 0112 106521617